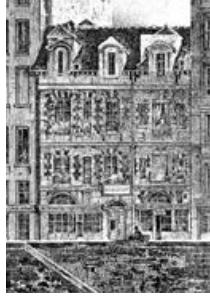


LE QUAI DE L'HORLOGE

N°4





LE QUAI DE
L'HORLOGE
N°4





Dear Friends of Breguet

How many designs can claim to have endured for two hundred years? And by “endured” I mean not as a museum piece, not as an oddity, but as a design as fresh, alive and appealing as it was when it debuted. This can be said for the design aesthetics pioneered by our founder Abraham-Louis Breguet. His signature guilloché dials, pomme hands (now universally called “Breguet hands”), numerals (likewise universally called “Breguet numerals”) and coin-edge cases were and remain fundamental elements of Breguet’s DNA. And there is one other core design imperative that equally reaches back as far and continues equally as one of our DNA pillars: thin profiles.

Two hundred years ago the refinement and elegance that comes with a thin construction was established as a design imperative for many of Abraham-Louis Breguet’s timepieces. We respect that virtue today and honor this part of our heritage with the Classique Tourbillon Extra-Plat described in this Issue. This tourbillon offers an entirely new construction that has produced a profile of breathtaking thinness. As you will learn from the article, we did

not approach this difficult to achieve design from the point of view of “winning” an extra-flat contest. Instead, we wanted to advance the watchmaking art of thin construction while, at the same time, preserving the elegance and refinement of the finished timepiece. Thus, the Tourbillon Extra-Plat is fitted with a solid gold guilloché dial, our signature hands and our classic coin-edge case. Moreover, it has been designed to admit of no compromises in robustness or performance, which often is a pitfall with extra-thin timepieces from others. I hope you enjoy learning of the many innovations which we developed to make this watch a reality.

Even though our founder was Swiss, from the beginning of his enterprise in Paris through today, the name Breguet has been inextricably woven into the fabric of French history and culture. We celebrate two of those connections in this issue. First is the story of the branch of the Breguet family that established itself as a leader and pioneer in French aviation. Second is the recounting of the history of the Louvre which follows the re-opening of the Richelieu wing of the museum, whose restoration was supported by Breguet.

Yours sincerely,

A handwritten signature in blue ink, reading "M. Hayek".

Marc A. Hayek, President and CEO Montres Breguet SA



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Classique Tourbillon
EXTRA-PLAT

By Jeffrey S. Kingston

If you were to hand almost any experienced watch connoisseur a sheet of paper and a pen and ask that he prepare a fulsome catalog of complications, no doubt the list you would receive back would dutifully record calendars, perpetual calendars, tourbillons, chronographs, split second chronographs, minute repeaters, dual time zones, and grand sonneries. Unless of course the connoisseur you chose was a movement designer. In that case, without doubt, a prominent place in the catalog would be held by extra-thin movements. Deservedly so. For movement designers well understand the extraordinary creativity and savoir-faire required to develop a truly extra-thin movement.



Before turning to the challenges of “going thin”, a brief pause for some definitions. For watchmakers there are two distinct concepts that colloquially sound the same, but carry with them two very different meanings: “extra-flat” and “ultra-flat”. “Extra-flat” is used to describe thin movements that are not dependent upon the case to run. “Ultra-flat”, by contrast, is the term that is generally applied to those watches where the watch case serves as a functional component of the movement. Said another way, a watch where the movement will not run if removed from the case which it uses. For mechanical watches this is far from an ideal arrangement and the history in the industry of ultra-flat timepieces has been marked by performance and reliability issues.

When it initiated the project to develop the Classique Tourbillon Extra-Plat, Breguet set the bar high. It wanted to create a tourbillon of breathtaking thinness with the convenience of automatic winding, but at the same time to avoid ultra-flat constructions and the reliability issues that

come with them. Second, this extra-flat movement would have to be robust; there would be no compromises in performance and/or reliability chosen in order to reduce thickness. Third, as every owner prizes a watch that looks beautiful, classic Breguet aesthetics would have to be honored and respected in the design. Again no tradeoffs made in the name of thinness.

What was achieved? Fully all of the goals established at the outset. The Classique Tourbillon Extra-Plat boasts a movement, the caliber 581 DR, that is only 3 mm thick. A catalog of extra-flat automatic winding *non-tourbillon* movements places this in perspective: the world record for thinness at 2.10 mm is held by the Breguet caliber 2100 (which is no longer in production); the 2100 was followed by three of a thickness of 2.40 mm, the Breguet caliber 502 and two different automatic winding movements from two other manufacturers of equivalent thinness; then very recently one manufacturer shaved an imperceptible 0.5 mm in thickness to arrive at 2.35 mm with a new



◆ Breguet No. 4691. Repeater, equation of time, power reserve, calendar and moon phase. 7.7 mm thick. Originally sold on October 13th 1831 to Lord Henry Seymour Conway.



non-tourbillon automatic movement. But this is a comparison between automatic winding movements with *no complications* and the Classique Tourbillon Extra-Plat which, in addition to automatic winding, offers both the complications of a tourbillon and a power reserve indication with a thinness which is essentially indistinguishable visually from these far more simple calibers. Equally importantly, the Classique Tourbillon Extra-Plat's power reserve of 80 hours far exceeds that of the other extra-flat non-tourbillon automatic winding movements; the substantially longer power reserve of the Extra-Plat tourbillon is even more impressive as it runs at a frequency of 4 Hz (28,800 beats per hour) whereas the other more simple extra-flat movements generally run at the lower frequencies of 2.25 or 2.5 Hz, except for Breguet's caliber 502 which runs at 3 Hz. Remember that as the frequency increases, which brings along with it greater timing precision (at higher frequencies the effects of perturbations dissipate more rapidly), it becomes more difficult to achieve a high power reserve as the mainspring barrel is unwinding at a greater rate. In layman's terms, each "tick tock" of the watch is accompanied by an unwinding of the barrel; the faster the "tick tocks" occur, the faster the barrel is being unwound. The Tourbillon Extra-Plat, thus, sets itself apart from other extra-flat movements in *three* important dimensions: its functions, its high power reserve and its high frequency.

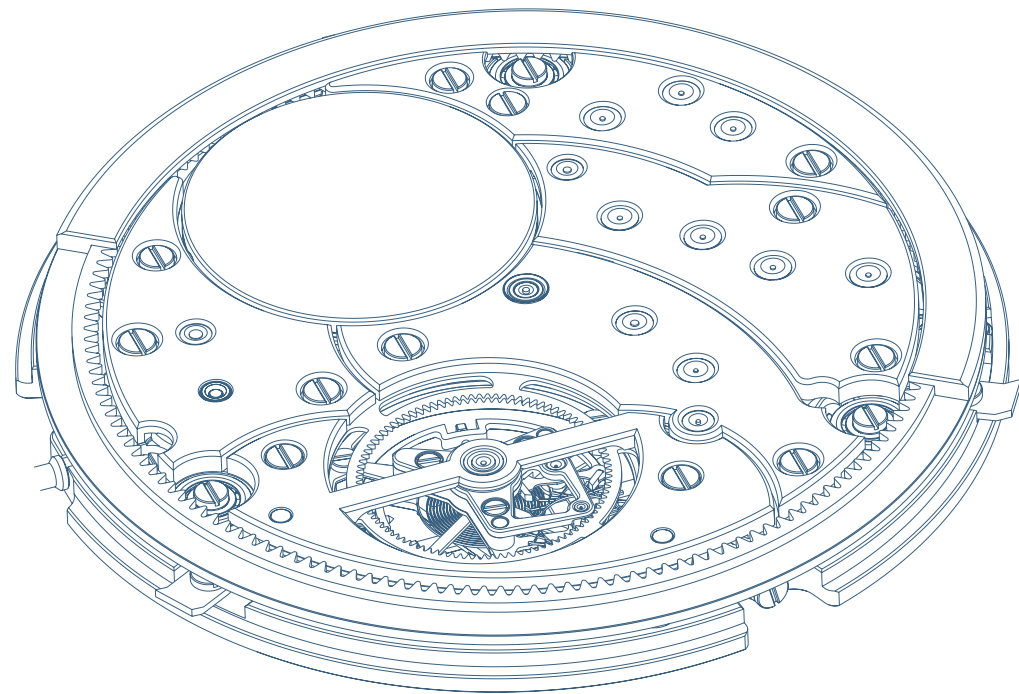
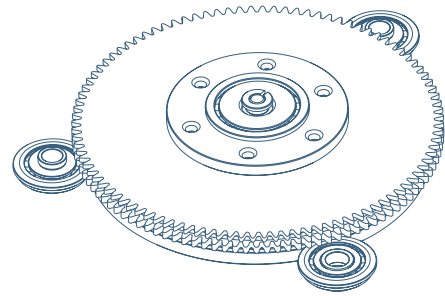
But one does not wear a movement, what really matters is the watch itself. The thickness of the overall watch is only 7 mm, which is perfectly proportioned with its 42 mm diameter red gold or platinum case, and offers all of the signature elements that have come to define classic Breguet style: a solid gold hand guilloché dial, Breguet "pomme" hands, coin edged case with a clear sapphire caseback, and soldered Breguet style lugs.

∞ *THERE WERE NO MAGIC BULLETS.*

The thinness of the movement is the result of re-imagining all the major elements.

There were no "magic bullets" that presented themselves to Breguet's designers when they started down the development path. Indeed, the last construction innovation that, in and of itself, led to a major drop in movement thickness occurred in 1775 when French watchmaker Jean-Antoine Lépine invented a movement that utilized bridges, greatly simplifying movement construction and enabling far thinner designs. Instead, the team worked toward the goals through a re-imagining of all the major elements of the movement.

One of the first components which was confronted was the barrel. It is the winding barrel that is the store of the energy which the watch needs to run. It can be imagined as



- ♦ Above: the barrel is supported by three bearing assemblies.
- ♦ Below: the peripheral winding rotor is likewise supported by three bearing assemblies.

having three major components: the mainspring; the barrel drum itself which houses the spring; and the arbor around which the mainspring is wound and which is attached to its associated gear (termed “ratchet” or winding wheel). In almost all watches the mainspring is wound as the ratchet is turned, either via the crown or the automatic winding mechanism, and unwinds as the barrel drum rotates, teeth on the exterior of the drum delivering energy to the gear train of the watch. Conventional construction arranges these key barrel components in what can be imagined as a sandwich. At the base is the main plate of the movement upon which is poised, in order, the barrel drum containing the mainspring, a barrel cover, then a top bridge (so that the barrel assembly is supported and suspended top and bottom), and last the ratchet above the top bridge (with the axis of the ratchet serving as the arbor inside the barrel).

To reduce the overall thickness of the barrel assembly by 25% an entirely different construction was conceived. Both the top bridge and the barrel cover were eliminated and the order of components was reversed. Instead of mounting the barrel drum upon the mainplate, the ratchet is attached. The base of the ratchet is fitted with a ball bearing base plate which is attached to the mainplate; as the watch is wound, either with the crown or with the automatic winding system, the ratchet is able to turn upon this bearing support. This is a far more sophisticated structure for the ratchet and its arbor than with ordinary constructs, as they do not customarily include a ball bearing system. But if there is to be no top bridge, how can the barrel drum be supported for its rotation? The clever solution was to position three ball bearing assemblies around the perimeter of the drum and equip the drum with a small groove that would be held in place by the three bearing assemblies. By means of these three ball bearing assemblies, the barrel is supported, positioned and allowed to turn without need of

∞ *THE MOVEMENT WAS DESIGNED
WITH NO COMPROMISES.*

*The pursuit of thinness called for no sacrifices
in performance or function.*

a top bridge. Most importantly, in addition to its reduction in thickness, this design has been conceived to be robust and resistant to shocks.

Equally vital is the amount of energy which this innovative barrel can store. At the same time as the one quarter reduction in height was achieved, the amount of energy stored was increased by over 20%. This enables the watch to achieve the previously mentioned 80 hour power reserve, which is extraordinary for an extra-flat movement, doubly so considering its high frequency.

The focus logically shifts next to the design of the movement assembly linked to the barrel: the automatic winding system. The overwhelming majority of modern automatic winding systems utilize a heavy mass (termed most often “rotor”) which rotates as the watch wearer naturally

∞ THINNESS MARRIED
WITH AESTHETICS.

The peripheral winding rotor not only works to slim the movement, it allows for an unobstructed view of the hand carved bridges and barrel drum.

moves his arm during the course of a day. That rotation is transferred via gears to the ratchet of the barrel which winds the mainspring. Although there are some exceptions, the most conventional arrangement places the winding rotor on the back side of the movement, between the movement bridges and the caseback. Of course, this adds thickness to the movement. In pursuit of thinness, the Tourbillon Extra-Plat adopted an entirely different approach. Instead of placing the winding rotor on top of the movement bridges, it is located on the periphery or, said another way, outside the circumference of the movement. With this solution, there is no added thickness at all contributed by the winding system; the winding rotor will naturally rotate on the outer perimeter of the movement as the owner goes through the day.

The construction of this peripheral winding system is, however, more complex than conventional rotors added above the movement bridges. The rotor itself is in the form of a ring. One half of the ring has added to it a platinum

band and is, therefore, far heavier than the other half. Thus, ordinary arm motions rotate the entire ring as gravity acts more strongly upon the heavier platinum half. The ring itself is suspended by three ball bearing assemblies, which in similar fashion to the barrel drum suspension system, engage a small groove on inner side of the ring. In order for the rotation to deliver power to the ratchet, its inner diameter is fitted with teeth that, in turn, engage a gear train connected to the ratchet.

There is one other benefit to this peripheral rotor system. With conventional winding systems the winding rotor typically obstructs the view of a significant portion of the movement. For the owner to enjoy gazing upon the beautiful finishes of the movement's components, the watch must be tilted back and forth so that gravity will pull the rotor out of the way of the portion of the movement which one wants to view. With the peripheral rotor there is no blockage of view, the entire backside of the movement is visible through the caseback. No tilting required.





∞ *A UNIQUE TOURBILLON
CONSTRUCTION.*

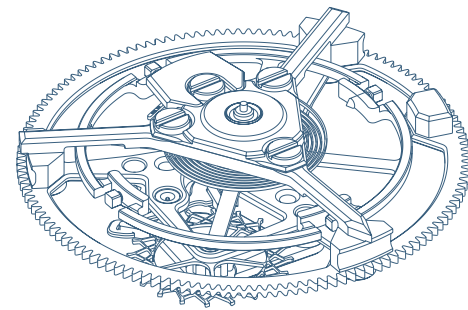
*The thin construction provides an
un-paralled brightness to the tourbillon
porthole showcasing its components.*

Naturally, the tourbillon, including its balance wheel, drew considerable attention from the movement designers. The function of the tourbillon is to cancel out the effects of gravity upon the rate keeping elements of the watch—balance wheel and escapement—by placing them in a cage (sometimes termed “carriage”) and rotating them over 360 degrees once per minute. Imagine then the challenges of reducing the thickness of this complicated mechanism so that it can be incorporated into an extra-flat movement. Watchmakers struggle to fit an ordinary balance wheel and escapement into extra-flat movements *without* the added complication of a rotating cage.

The first step in the process of achieving thinness was the design of the balance itself. Drawing upon its experience with the extra-flat 1200, 2100 and 502 calibers, which for decades enjoyed distinction for their thinness, Breguet constructed this balance wheel so as to fit the balance spiral entirely within the thickness of the wheel itself. Cutting edge technology plays an important role in the design as

∞ WATCH CONNOISSEURS WEAR
WATCHES NOT MOVEMENTS.

*What matters is the manner in which
the extra-flat movement is married to
the watch case and dial.*



• Diagram of the tourbillon showing the exterior teeth on the tourbillon cage used to power its rotation and the escapement.

the spiral is fashioned in silicium. There are multiple benefits from the use of this patented spiral: first, it has a perfect shape, ideal for high precision timekeeping; second, it is naturally resistant to magnetic fields; third, it offers more consistent chronometric performance over a wider degree of barrel wind (referred to by watchmakers as “isochronism”).

The tourbillon cage itself was designed in a new way, different from other tourbillons in Breguet’s collections. With Breguet’s other tourbillons, power is delivered to a pinion attached to the center of rotation of the tourbillon cage. Of course this places a gear train below the level of the cage adding thickness to the overall package. A thinner profile was achieved by delivering power not to a pinion below the cage, but, instead, to the exterior rim of the cage which has been fitted with teeth. Thus, the tourbillon cage is driven from the outside. The cage itself is constructed out of titanium, endowing it with a reduced weight. There was one other clever addition to the construction of the tourbillon related to the way in which the cage rotates. Standard

construction utilizes a fixed wheel, technically referred to as the “fourth wheel”, which is engaged with a pinion attached to the escapement. As the escapement turns, this engagement rotates the cage and with it the timekeeping components around the fixed wheel. In this new tourbillon, instead of placing a conventional fixed wheel at the center of rotation, Breguet designed a large exterior ring with teeth that are engaged with the pinion of the escapement. The operation is 100% the same, as the rotation of the escapement together with the engagement of the teeth produces the rotation of the cage and its components. The result, however, reduces the thickness of the mechanism by a few tenths of a millimeter and endows the tourbillon porthole with a brightness that showcases and enhances the beauty of the other components.

As we noted at the outset, watch connoisseurs wear watches not movements and considerable attention was devoted to the marriage of the record breaking caliber 581DR movement to the watch case and dial. There was

one inflexible imperative: a solid gold hand-guilloché dial. Some extra-flat watches employ the expedient of a thin dial or no dial at all in an effort to shed thickness. That represents an aesthetic compromise that was unacceptable to Breguet. As hand carving a delicate guilloché pattern using a traditional rose engine demands a certain thickness of the gold, Breguet spurned any temptation to deviate from its heritage and accepted the necessary extra thickness in the dial. Nonetheless, there was at least one clever trick associated with the dial. Although it is firmly attached to the movement, the top bridge of the tourbillon is neatly nestled into two slots on the dial itself, one on each side of the tourbillon porthole. So carefully nestled in place is it that the bridge appears to be part of the dial. In fact it is not; its attachments to the movement are hidden under the dial.

Thinness did not stand in the way of decorative flourishes on the movement either. Its bridges and the barrel have been elaborately hand engraved.

Breguet enjoys a rich patrimony of innovations extending back 200 years that are honored in this newest member of its range of tourbillons. Of course there is the tourbillon mechanism itself, which Abraham-Louis Breguet invented and patented in 1801. Likewise Breguet's founder dramatically demonstrated his watchmaking savoir-faire with extra-flat constructions including his extraordinary No. 3306 quarter hour repeater, but 8 mm in thickness, and the No. 4691 featuring a half quarter hour repeater, moon phase, calendar, equation of time and power reserve indications, breathtakingly slim at but 7.7 mm. The heritage of these pioneering efforts are both kept alive and revitalized with the new Classique Tourbillon Extra-Plat.





CAMEOS

By Jeffrey S. Kingston

A Breguet timepiece will always be rare. Indeed the exclusiveness of every Breguet watch has been memorialized by individual numbering dating back to the opening of the founder's workshop on the Quai de l'Horloge in Paris in 1775. But there is an added dimension of singularity which accompanies every women's Reine de Naples Camea and Secret de la Reine. Both women's timepieces feature and incorporate Italian hand carved sea shell cameos, in the case of the Camea, for the dial and, in the case of the Secret, the case cover in the shape of a rose. For every watch, these natural cameo adornments are unique, each subtly asserting its individuality. In the language of watchmakers, every Reine de Naples Camea or Secret can be called a *piece unique* as no two examples will be exactly alike.



Cameo carving is one of the world's oldest art forms which historians can trace back to the 3rd century BC in Greece with carved stone pieces. The most acclaimed example of early Greek cameo carving from the 2nd century BC is the Tazza Farnese cup, the oldest surviving major cameo work. This exquisite sardonyx shell cup with its vivid color contrasts and three dimensional carved allegorical figures demonstrated the emotional power of carved relief images in white set upon a contrasting dark color background and came to define cameo expression for the more than two millennia which have ensued since its creation. Today, the sublime Tazza Farnese is housed in the Naples Archaeological Museum. Over the centuries that have followed these early Greek efforts, in common with other art forms, the popularity of cameos waxed and waned. A tremendous surge in vogue, especially for shell cameos, occurred during the reign of Queen Victoria, whose fondness for them led her on occasion to wear more than one at a time. Adding to the fashion wave was Catherine the Great who

likewise favored them. Along with the upswing in demand propelled by eager buyers in Victorian England came the flourishing of cameo artists working at the feet of Mount Vesuvius in the village of Torre del Greco. It was here that cameo carving of sea shells, as opposed to other carving materials such as glass or gemstones, found its natural home. And it is in Torre del Greco that, today, Breguet found a team, father and son, for the crafting of the cameo elements for its timepieces.

Although both historically and currently many different varieties of sea shells have been and are used for cameos, the finest works are carved using the sardonyx. Of course, all of Breguet's cameos are realized in sardonyx. Sometimes colloquially referred to as "Helmet Snails" or "Emperor Queen Helmet Snails", the scientific name for the sardonyx is "Cassis Madagascariensis". The official name is hugely misleading because these mollusks are most commonly found not near Madagascar as the name would suggest but





in the Western Atlantic. They are prized not only for their large size but for the striking color contrast naturally found in the shell. Although the outer layers of the sardonyx shell are milky white, as the artist carves down, darkly colored layers emerge. This double contrast, both in color and in depth, allows for the creation of white figures in relief lying above a dark background, the classic style roots of a the Tazza Farnese.

The art of cameo is deeply layered into the very fabric of life in Torre del Greco, its veins and traditions spanning generations within families. Breguet's cameos are crafted by a father and son team, Pasquale and his son, Fabio. Pasquale acquired his craft from the Grand Master of Cameo Giuseppe Scialanga (1889–1960), his initiation coming at

the age of but seven years when he began his apprenticeship. Fabio enriched his training at the Academy of Fine Arts in Naples. Prior to their engagement by Breguet, Pasquale and Fabio were renowned for their shell cameos depicting Botticelli's legendary Three Graces in Primavera (the original painting displayed in the Uffizi) and a variety of Biblical scenes and traditional images of Neapolitan saints.

The studio is tucked into a small apartment, bathed in natural light, and lying just south of Mount Vesuvius. Here since the beginning of their collaboration with Breguet, Fabio has been working exclusively on the dials and roses for the Reine de Naples; his father dividing his time between Breguet and other cameos. Historically, many of the





♦ Cutting of the shell, followed by smoothing of the edges.



♦ Once the dial has been cut from the shell and polished, it is attached to a wooden holder with a mixture of wax and pitch.

∞ *CAMEOS BEGIN WITH A CAREFUL
INSPECTION AND SELECTION
OF THE SHELLS.*

Once sorting has been completed and a shell chosen, the areas on the shell suitable for a dial are identified, in the case of the Cammea, or ideal for a flower, in the case of the Secret de la Reine.

shell cameos were carved upon shells brought into the port by Naples fisherman. That tradition no longer endures as shells of far higher quality, and certainly sardonyx, are purchased abroad by merchants who sell them to the artists in lots of 50–100 shells. These shells are completely natural and untreated. They arrive after a drying process which places the shells upon bamboo canes, leaving them in the open air for 12–18 months.

Cameos begin with a careful inspection and selection of the shells. Father and son meticulously scrutinize the best shells searching for the most miniscule signs of cracks or flaws, retaining only those shells deemed to be perfect. Once that sorting has been completed and a shell chosen,

they must identify the areas on the shell suitable for a dial, in the case of the Cammea, or a rose, in the case of the Secret. At most a single shell may yield two dials or two to three roses. The shapes for a dial or a rose are marked in pencil upon the interior of the shell and, once satisfied with the choice, cut from the shell with a fine saw. Following the cutting, the edges are delicately smoothed and rounded. Several steps remain before the carving can begin. Mixing a solution of wax and pitch, the cut shell is mounted upon a wooden stick. Next the outer surface is leveled. Not only does this provide a flat surface, essential for a watch dial, but it removes the rough outer portion of the shell revealing the milky white layer that will become the image. Finally, they have their canvas and can begin the carving.



♦ Before carving begins the design is sketched onto the surface.

Fabio and Pasquale start by sketching the motif with pencil. The Cameo design is of a sunflower, with the hands nestled into a recess which is at the center of the flower. That, too, would be sketched upon the surface in the same way. Working with a form of awl, known as a *bulino* (originally invented by an Italian artist), they begin the process of scraping the surface. Large outlines at first, and then, with ever finer tipped tools, the details of the flower are delicately carved into the surface. The background colors emerge as the artists dig deeper into the layers of the shell. Most importantly, all of the colors are naturally present in the shell; nothing is painted upon it or added to it. The revealed color of every shell is unique in tone, opacity and depth within the shell. When this diversity of color is combined with the



♦ The natural colors of the shell emerge as the carving penetrates deeper below the surface.

∞ ALL OF THE COLORS ARE
NATURALLY PRESENT IN THE SHELL.
Nothing is painted upon it or added to it.

∞ THE ARTISTS' "BRUSHES".

The design is created entirely using awls, termed "bulinos".





♦ Interpreting new cameo dial designs.

∞ EMERGING FROM THE SHELL,
A CLASSIC SUNFLOWER.

*The hands are nestled into the center
of the flower.*



subtle variations in the flower motif that come from hand sketching followed by hand carving, it can truly be said that each cameo stands apart from all others.

It should be remembered that the cameo for the Reine de Naples Cammea is the dial of the watch. Thus, this miniature tableau must marry their artistic virtuosity and the strict demands for fitting to a watch's movement, hands and case. When the cameo carving is completed, several flat spots on the back are located and a base, for precise fixing to the movement, is glued into place.

The Reine de Naples Cammea is housed in a white gold case set with 40 diamonds (weighing 2.42 carats) around the bezel. The cameo rose of the Secret is fixed onto a hinged case cover, that, in its closed position, hides the dial from view, with the diamond set bezel appearing as a bow tied around the rose. Swinging the rose cover to the side on



its hinge, reveals the secret, an invisible set diamond dial with a mother-of-pearl oval inscribed with the Breguet logo. The Secret is available in both rose gold and white gold, with either a leather strap or a woven gold bracelet. Both the Cammea and Secret are fitted with self-winding movements.

In addition, the cameo rose occupies a prominent place in Breguet's Jewelry and Fine Jewelry collections as it adorns, depending upon the collection, earrings, rings, bracelets, pendants and necklaces in a variety of sizes and in different combinations of gold and pearls.

The Reine de Naples Cammea and Secret de la Reine stand alone in the world of fine watchmaking as the only timepieces offering the art of cameo. Not only are they unique for their uniting of a traditional craft with *haute horlogerie*, but each example asserts its individuality in its colors and design.





Louis Breguet,
AVIATION PIONEER
and watch enthusiast

By Emmanuel Breguet

♦ A Breguet 531 Saigon civilian flying boat
belonging to Air France, pictured over Le Havre in 1934.

*I*f the name of Breguet is associated with aeronautics as well as with watchmaking, it is due to one of the pioneers of world aviation, Louis Breguet (1880-1955). And if you wonder whether Abraham-Louis Breguet and Louis were from the same family, the answer is yes.



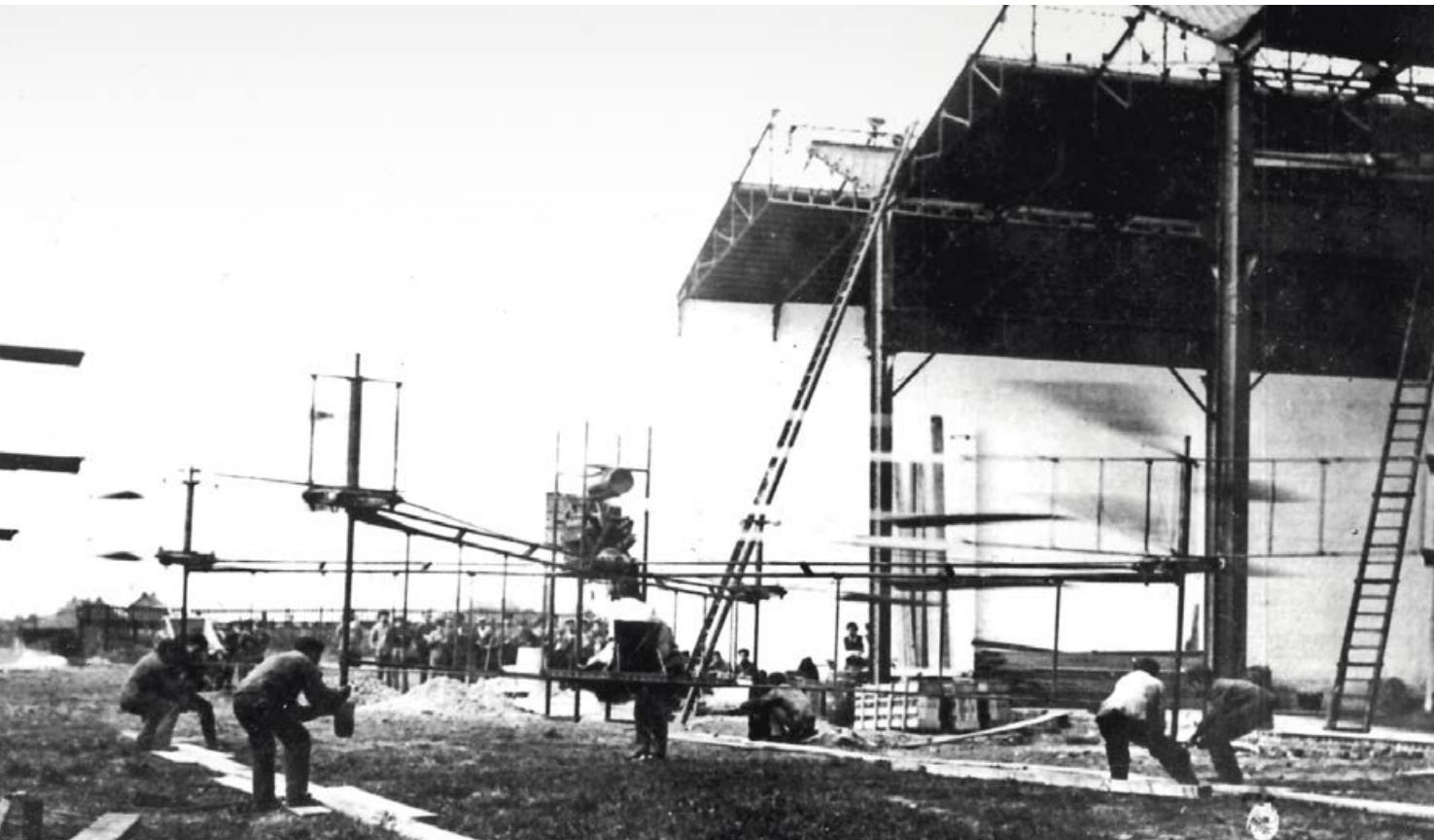
Louis Breguet in fact represented the fifth generation of his family since the arrival in France in 1762 of his great-great-grandfather, Abraham-Louis Breguet (1747-1823), member of the French Academy of Sciences, who established his business in Paris and, with his son, Antoine-Louis (1776-1858), brought the art of watchmaking to its peak. Louis' grandfather, Louis-Clément Breguet (1804-1883), also member of the Academy of Sciences, devised a large number of electrical instruments. He invented and built a dial telegraph adopted by many countries and developed several telecommunication systems that improved railroad safety. In recognition of his many achievements, his name is featured on the Eiffel Tower. Louis' father, Antoine Breguet (1851-1882), graduate of the Polytechnique and one of the most promising engineers of his generation, introduced the Bell telephone in France before dying prematurely at the age of 31.

Louis Breguet, newly graduated from the *École supérieure d'électricité* (school of electrical engineering), seemed destined to take over the family telecommunications and electric-motor activities, the watchmaking business having been sold by his grandfather in 1870¹. However he surprised his relatives by turning decisively towards aviation.

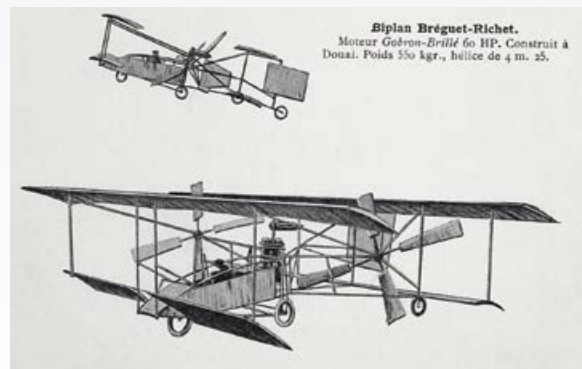
Summing up the career of Louis Breguet in a few lines is no easy task given that he and the *Société Anonyme des Ateliers d'Aviation Louis Breguet* that he established and ran (later known as Breguet Aviation) became the major players of the aviation world for nearly a century. As an engineer and company manager, Louis Breguet entered history in his lifetime on three counts: for his pioneering work on helicopters, for his major contribution to military aviation and for his role in establishing civilian air transport².



◆ *Louis Breguet, engineer and pilot, at the controls of one of his aircraft in 1910.*



♦ A rare photograph of the lift-off on August 24, 1907 at Douai of the Breguet-Richet Gyroplane N°1. Assistants hold on to prevent the craft moving sideways.



♦ The peculiar Breguet-Richet Gyroplane N°2 featured on a postcard.

The gyroplane, an early helicopter

From 1905 to 1909, in partnership with his brother, Jacques, and professor Charles Richet³, Louis Breguet entered the emerging world of aviation with an original approach: rotary wings or vertical takeoff. In 1907 his *Gyroplane n°1*, a curious aircraft with four rotating systems comprising eight propellers each, was twice airborne for about one minute: it reached an altitude of 60 centimeters on August 24 and almost 1.5 meters on September 20. It was a world first and Louis Breguet immediately informed the Academy of Sciences. In its meeting of September 16 it made the lift-off of August 24 official by declaring: "A helicopter-type craft succeeded for the first time in becoming weightless and leaving the ground with its engine, supplies and one man on board." Faced with the poor results obtained by two other rotary-wing machines, Louis Breguet,

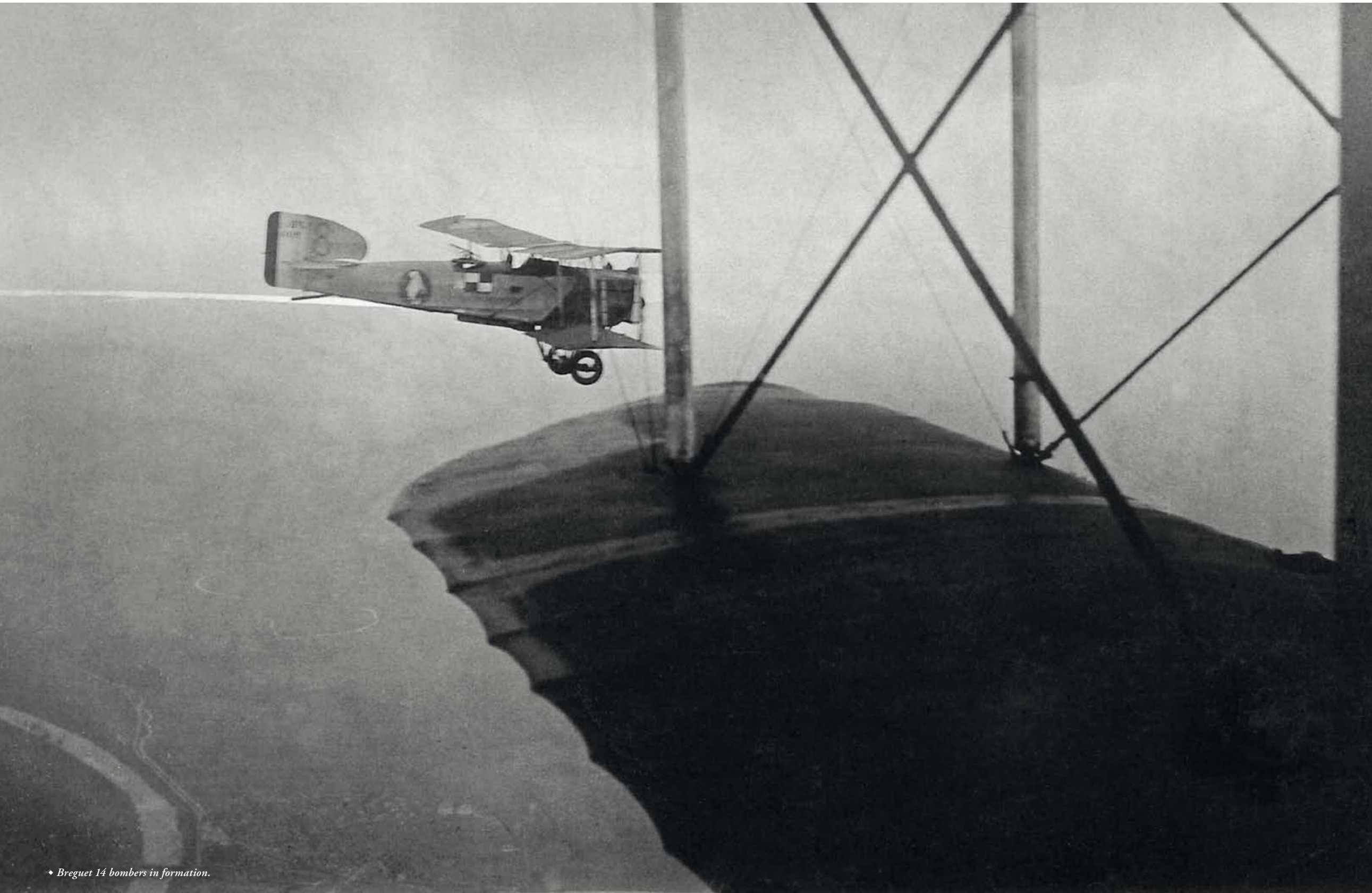
abandoned vertical takeoff in 1909, despite his conviction that this was a promising solution, and embarked on the construction of conventional aircraft with biplanes and then monoplanes. But he hadn't yet said his last word on the matter. Indeed, 23 years later, in 1932, he decided to resume the gyroplane venture, when, at the peak of his career he was listened to and watched by his competitors around the world. Even though the technology had advanced considerably, especially so far as engines were concerned, the undertaking was still regarded as somewhat crazy. Nevertheless with a reduced team consisting of René Dorand and Maurice Claisse, and after three years of relentless efforts, 1935 and 1936 saw the exploits of the experimental Breguet-Dorand gyroplane. Breaking records of maneuverability, speed (108 km/h), altitude (158 meters), endurance (one hour and three minutes) and hovering (10 minutes), it firmly established itself as the first modern helicopter⁴. Louis Breguet, thus twice strongly influenced the history of the helicopter and inspired a whole generation of engineers in his wake, including Igor Sikorsky and Frank Piasecki.

Breguet and military aviation

Returning in 1909 to a more conventional approach, Louis Breguet built biplanes from 1911 for the armed forces of France, the United Kingdom and Russia. Like the world's other aviation pioneers in 1914, he committed himself totally to the industrial production of aircraft, which had by then become exclusively machines of war. On September 2, 1914, a few days before leaving the front line to attend to his factories, he undertook on his own initiative one of the hazardous aerial reconnaissances that would alert the French general staff to the German attempt to get around Paris from the east. This intelligence, taken seriously by generals Gallieni and Joffre, ended in the first battle of the Marne, made famous by the Paris taxis requisitioned to

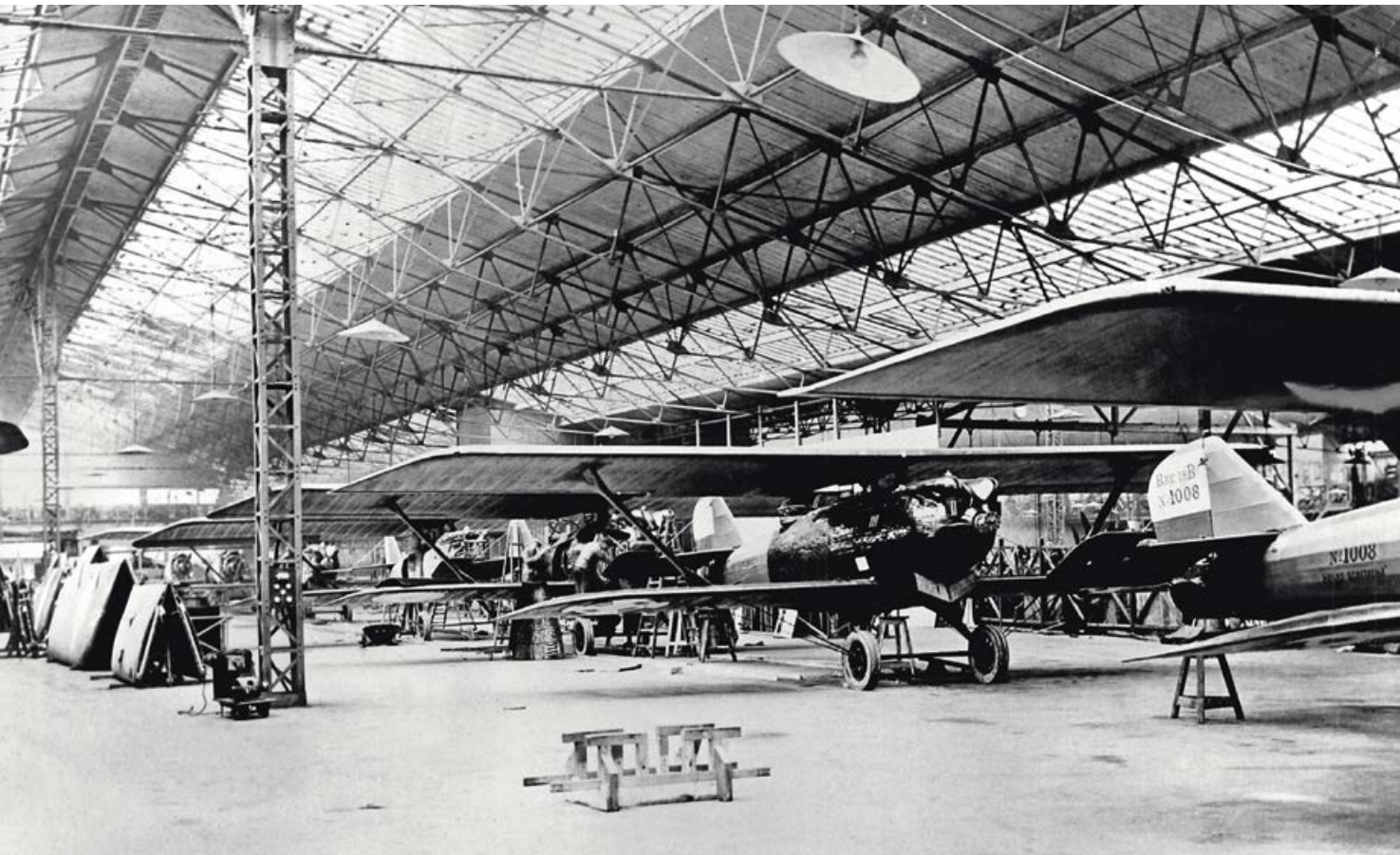


♦ The Breguet-Dorand Gyroplane photographed on its historic flight on September 22, 1936.



◆ *Breguet 14 bombers in formation.*

∞ *THE BREGUET 14 MADE ITS MAIDEN FLIGHT IN NOVEMBER 1916. It remained in service for more than 10 years and earned Louis Breguet an international reputation.*



◆ Assembly line of Breguet 19s at the Villacoublay plant.

rush reinforcements to the front line. Louis Breguet was awarded the Croix de Guerre medal for his outstanding feat and his name was to be forever associated with the victory on the Marne that changed the course of the war.

However, the conflict bogged down into trench warfare. Aircraft production was stepped up but it took another two years before there was any real technological development in aviation. The Breguet 14 aircraft made its maiden flight in November 1916 and was mass-produced from 1917. This ultra-modern two-seater biplane featured an all-metal structure (with canvas-covered fuselage and wings) representing the very first use of duralumin. Built for reconnaissance and bombing, it caused a sensation

among flight squadrons thanks to its speed, its maneuverability, its high payload capacity, as well as its 6,000-meter ceiling that put it out of reach of enemy aerial pursuit. It turned out to be an indisputably major factor in the allied victory of 1918. The Breguet 14 of which almost 8,000 were built and sold to around 15 countries, including the United States, where it was in service for more than 10 years, gave its designer a worldwide reputation⁵. Its successor, the Breguet 19 was in the same mold and went on to equip air forces around the world⁶. Other multi-crewed combat aircraft followed and then came the powerful tactical bomber, the Breguet 690, which was ordered too late by the French general staff to prove its worth in the battle of France in 1940. However it was also ordered by Belgium and



◆ Louis Breguet in 1936, at his drawing board in his offices in the Rue Georges Bizet, Paris.

Sweden. Louis Breguet continued to supply armed forces to the end, and so did his successors. The 1950s and 1960s saw the development and sales of the Breguet 1050 Alizé anti-submarine aircraft that flew off the French aircraft carriers Clémenceau and Foch until 2000, and that was also used by the Indian navy. This was followed by the Breguet 1150 Atlantic long-range maritime patrol and reconnaissance aircraft, winner of the NATO competition in 1958 and acquired by France, Italy, Germany and the Netherlands. An upgraded version is still flying over the world's oceans and deserts. The Breguet 941 troop carrier that could land in a football field came next, and finally the Franco-British Jaguar strike aircraft, which had a long and brilliant career.



♦ A Breguet 280T Limousine pictured at Paris–Le Bourget airfield in 1929.

Breguet and civil aviation

It was however in the area of civil aviation that Louis Breguet revealed himself to be a true theoretician and a visionary entrepreneur. Mass-passenger transport was an old ambition, first glimpsed on March 23, 1911, when with 11 people on board his 90 horsepower biplane, he broke the record of the number of passengers carried⁷. As soon as World War I was over, he was among those who envisaged peacetime aviation. In February 1919 he established the Compagnie des Messageries Aériennes to carry passengers as well as mail on the Paris-Brussels and then the Paris-London routes. For the next 15 years he continued to develop a major network through partnerships, mergers and links that was coherent and, if possible, profitable.

The Paris-Le Havre route was launched in 1921 to connect with the liners to New York. In the summer of 1922, the route from Paris to Marseilles via Lyons was inaugurated with a connection from Lyons to Geneva. In March 1923, Louis Breguet merged his enterprise with his competitor on the Paris-London route, the Compagnie des Grands Express Aériens, presiding over the new company which he named Air Union. In 1929, the Marseilles-Ajaccio-Tunis line was inaugurated; in 1931, Tunis-Algiers; and, in 1932, Lyons-Cannes. The same year, Air Union started, operating the direct Paris-Geneva flight in association with Swissair, with connections to Swiss domestic flights. By 1932, Air Union became the biggest French airline in terms of distance flown and passengers carried. In 1933 Louis Breguet



♦ Inside an Air Union plane on the Paris to London route.

signed the document that brought Air France into being after the French government decided to merge the five carriers of the time: Air Union, Air Orient, CIDNA and the Farman and Aéropostale airlines.

The Breguet 14s must of course be mentioned in the context of the Latécoère and then the Aéropostale mail services in Europe, Africa and Latin America, immortalized in the writings of Jean Mermoz, Henri Guillaumet and Antoine de Saint-Exupéry⁸. It would also be unfair to ignore the long-distance flights featuring Breguet aircraft from the start of the 1920s to the mid-1930s. These were, of course, individual exploits by planes that were not yet carrying freight or passengers, but they pointed to future

∞ THE GROWTH OF AIRLINES.

In 1933, Louis Breguet signed the document establishing Air France.



♦ A copy of the *Chronique des Avions Louis-Breguet* of September-October 1930 signed by Dieudonné Costes. The newsletter first came out in 1925.

∞ *THE BREGUET 19, named Point d'interrogation (question mark) won fame when it completed the first non-stop Paris to New York flight with Costes and Bellonte at the controls.*

possibilities and marked out what were later to become scheduled air routes. Among the best known were Paris-Tokyo in 1924 by Pelletier d'Oisy and Bésin; Madrid-Manila in 1926 by Gallarza and Loriga; the round-the-world flight in 1927 by Costes and Le Brix with the first crossing of the South Atlantic from Saint-Louis in Senegal to Natal in Brazil; Paris-Peking in 1929 by Arrachart and Rignot; and, of course, the flight that captured popular imagination, the non-stop Paris to New York in 37 hours and 18 minutes by Costes and Bellonte on September 1 and 2 in *Point d'Interrogation*, a long-distance Breguet 19⁹.

Although Louis Breguet used disarmed and especially modified Breguet 14s to launch his activities as a founding president of an airline, he also embarked on the design of such purpose-built passenger aircraft as the Breguet 28 *Limousine* and the Breguet 393 which turned out to have an excellent safety record. His most spectacular achievement after World War II was the Breguet 760 *Deux-Ponts*, a four-engine aircraft with a hundred seats spread between two decks and the ancestor of Airbus A-380. This particularly reliable and economic plane experienced no fatal accidents throughout its twenty years in service. In a far-sighted lecture in 1921, he described the aircraft of the future, which would fly at an altitude of 13,500 meters and bring New York to within six hours of Paris¹⁰. Louis Breguet did all he could to make air travel accessible to the greatest number, rejecting the notion of an elitist form of transport reserved only for the very rich. In 1943, he envisaged low-cost charters 30 years ahead of their time with the intention of bringing air fares down to the equivalent of third-class rail travel¹¹.



♦ A ticker-tape welcome for Costes and Bellonte on Broadway the day after their epic flight.

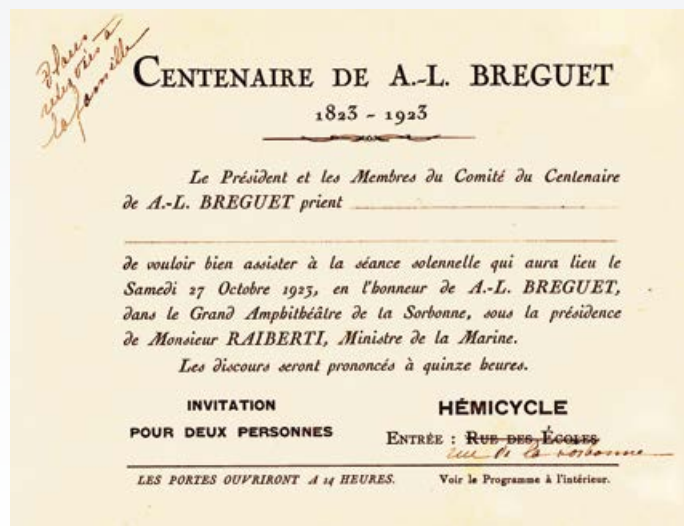
∞ CENTENARY CELEBRATIONS.

In 1923, Louis Breguet chaired the committee organizing the centenary of Abraham-Louis Breguet's death. Major events took place in France and Switzerland.

Louis Breguet died in 1955 while still extremely active in the firm, and the company that bore his name was taken over by the businessman, Sylvain Floirat, who brought a number of projects to fruition. In 1967, Marcel Dassault, another leading light in the field of French aviation, acquired Breguet Aviation, before incorporating it within his own company, then renamed Avions Marcel Dassault-Breguet Aviation, although more commonly known as Dassault-Breguet. The French government approved the deal, which gave Marcel Dassault the extra industrial resources of the Toulouse and Anglet sites¹² that turned out to be most useful to his global ambitions.

Louis Breguet's ties with watchmaking

In parallel with his aeronautical and also sporting activities¹³, Louis Breguet maintained contacts with the Brown family that took over his grandfather's watchmaking company, in proud memory of his ancestors' horological endeavors. The Louis Breguet aviation workshops frequently appeared in the ledgers of the watchmaking company from 1922. This indicates that Louis Breguet offered future opportunities for aviation-specific watchmaking products to the then directors of Montres Breguet. Moreover, in 1923 he chaired the committee celebrating the centenary of Abraham-Louis Breguet (1747-1823). It staged some major events in France and Switzerland culminating in the exhibition at the Galliera Museum in Paris that Louis Breguet opened with the French president, Alexandre Millerand¹⁴. For several weeks, the aircraft manufacturer found himself immersed in the watchmaking word and frequented by its eminent representatives from France, Switzerland and Britain. He spent a lot of time with the London industrialist, Sir David Salomons and Henry Brown, owner of Montres Breguet, as well as with his son and successor, George Brown. On October 26, Louis Breguet invited all these watchmaking representatives on a tour of his factories



♦ Invitation to the formal sitting at the Sorbonne on October 27, 1923.



♦ Presentation brochure of the Breguet 761 Deux-Ponts two-deck airliner.



♦ The Breguet 14 F-POST.



♦ The Breguet Deux-Ponts two-decker in the colors of Air France.



♦ The Breguet 1050 Alizé.



♦ The Breguet Sepecat Jaguar.

at Vélizy-Villacoublay. The following day he concluded a long speech in the Sorbonne university amphitheater with these words: “One of the finest jewels in the crown of the watchmaking industry is the fact of having helped the navy solve navigational problems on the high seas. Furthermore it today makes a powerful contribution to helping air navigators — whose efforts are particularly close to my heart — to find their way in space.” This was the engineer talking: watchmaking indeed had challenges to take up and a part to play in the emergence of aviation, similar to its former role for the navy. This declaration, from the mouth of an aircraft manufacturer, Louis Breguet, who was also president of the aviation industry’s trade association, takes on a particular resonance.

Frequent orders for Breguet timekeeping instruments from the aircraft manufacturer, Louis Breguet, continued for some time¹⁵ and Breguet watches naturally featured in the cockpits of Breguet aircraft. It is also interesting to note that one of the earliest steel chronographs with the special *retour en vol* or instant restart function was sold to Louis Breguet’s company in 1952. One of the first examples of what would become the Type XX model two years later was, thus, tested by Louis Breguet and his colleagues — an apt choice that proves how close the two Breguet enterprises really were.

One can only conclude by remarking that the celebrated aviation pioneer was also a watch enthusiast. He took a keen interest in watches as scientific instruments and his role as a behind-the-scenes consultant to the Breguet watchmaking company, although little known, was nonetheless real and substantial.

¹ In 1870, Louis-Clément Breguet gave up his watchmaking activities to his workshop manager, Edward Brown, an English watchmaker in Paris. Three generations of the Brown family successively ran Montres Breguet until 1970.

² For an overview of Louis Breguet’s career refer to *BREGUET, un siècle d’aviation* by Emmanuel Breguet, 144 pages, published by éditions Privat, 2012.

³ Charles Richet (1850-1935), Antoine Breguet’s friend and godfather to Louis Breguet. This physician and aviation enthusiast with wide interests won the Nobel Prize for Medicine in 1913.

⁴ For a world history of the helicopter, the reader is invited to consult *Hélicoptères, la genèse, de Léonard de Vinci à Louis Breguet*, by Bernard Bombeau, 364 pages, published by éditions Privat, 2006.

⁵ In addition to France the countries that operated the Breguet 14 were Belgium, Denmark, Sweden, Romania, Czechoslovakia, Poland, Spain, Portugal, Brazil, the United States, Siam and Japan.

⁶ The Breguet 19 was bought by France, Belgium, Yugoslavia, Romania, Poland, Greece, Bolivia, Venezuela, Argentina, Persia, Turkey, Spain, China and Japan.

⁷ This record was set at Brayelle, near the town of Douai in northern France where Louis Breguet started out as an aircraft manufacturer.

⁸ The Breguet XIV Association, run by Eugène Bellet, built a replica of the Breguet 14, registered F-POST, which is today the only Breguet 14 in flying condition. In 2010 it took part in a commemorative flight from Toulouse to Cape Juby (Tarfaya) in Morocco in tribute to the pioneers of that route. In 2015, his dream is to continue to follow the pioneering routes, this time in South America with a flight from Brazil to Uruguay and Argentina. Eugène Bellet is the author of *BREGUET XIV, des tranchées à l’Aéropostale*, 144 pages, published by éditions Privat, 2011.

⁹ Le Breguet 19 *Point d’Interrogation* is an emblematic part of the collection of the Musée de l’Air et de l’Espace (aerospace museum)

in Le Bourget. Also displayed in the museum are a Breguet 14 of World War I, the Breguet 19 of Costes and Le Brix, a gyroplane and several more recent aircraft. A 1911 Breguet biplane can be seen at the Musée des Arts et Métiers (arts and crafts museum) in Paris, also known for the fact that its horology collection comprises several of Abraham-Louis Breguet’s horological masterpieces.

¹⁰ *The future of aviation*, lecture delivered on November 16, 1921.

¹¹ *The future of air transport*, lecture delivered on November 24, 1943.

¹² The Vélizy-Villacoublay site in the Paris region became the center of Breguet aircraft production after Douai where Louis Breguet started out as a manufacturer before 1914. The factories at Toulouse and Anglet (a municipality between Bayonne and Biarritz) were acquired by Louis Breguet in 1939.

¹³ As a yachtsman, Louis Breguet won a bronze medal at the 1924 Olympic Games at the helm of his eight-meter *Namoussa* in regattas held at Le Havre. In 1928, he founded the Deauville Yacht Club of which he was commodore until his death.

¹⁴ The Paris exhibition at the Galliera Museum commemorating the centenary of the death of Abraham-Louis Breguet was the biggest Breguet watch exhibition held to date, featuring 266 timepieces of which around 100 were lent by Sir David Salomons (1851-1925), the leading collector of Breguet watches and clocks. It was held from October 25 to November 24, 1923.

¹⁵ Sales ledgers in the Montres Breguet SA archives in Paris.



REINE DE NAPLES

Jour / Nuit

By Jeffrey S. Kingston

When Abraham-Louis Breguet invented the tourbillon, patented in 1801, his conception was resolutely purposeful. All watches were subject to small rate keeping errors caused by gravity, which his invention sought to eliminate by constantly rotating the time keeping elements over 360 degrees. This was a brilliant notion, simple in its core idea, ferociously demanding of savoir-faire for those watchmakers who build them. If by reason of gravitational forces a watch would run faster in some positions and slower in others, rotating the time keeping elements constantly, passing through both the fast and slow positions, serves to average out those errors.

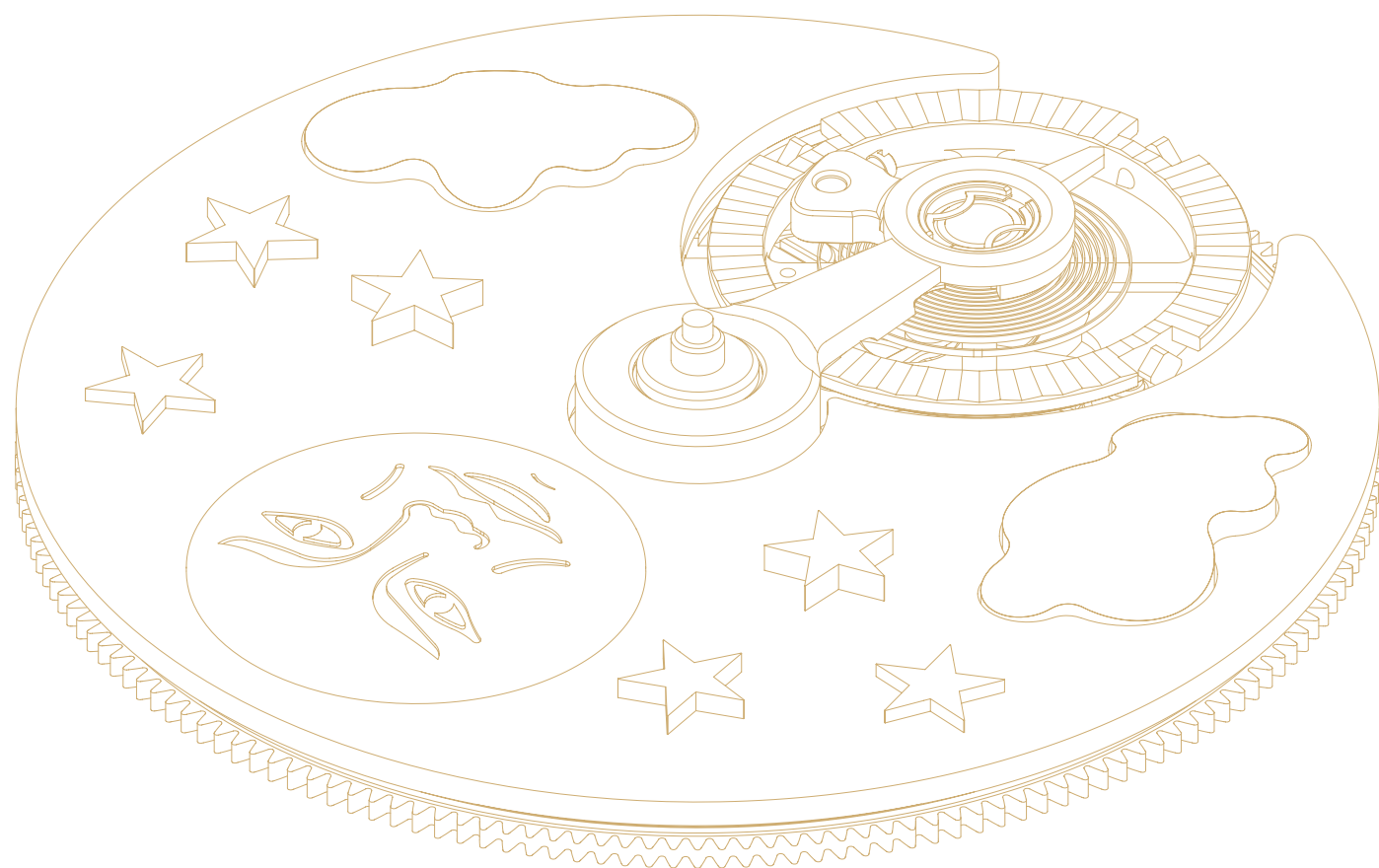


However purposeful the original invention in its establishment of new standards for chronometry, should there not be room in the overall idea of rotation of time keeping components for romance and whimsy? This is the insight that lies behind the Reine de Naples Jour/Nuit. It builds upon the core idea of a tourbillon in that it rotates the balance wheel, its spiral, and escapement over the course of a 24 hour day, but uses that rotation not only to improve time keeping precision, but to present enchanting depictions of both day and night.

The indications of day and night are, logically, built around the images of the sun and moon. Both are set upon a lapis lazuli disk. The image of the moon is the more conventional of the two as it is represented by a carved titanium disk, bearing the face of the man in the moon, which is set

into the lapis. Flanking each side of the moon are gold evening stars. It is the sun, however, which is the most astonishing for it is represented by the balance wheel of the watch. To heighten the visual presence, the outer rim of the balance is generously wide and decorated with a guilloché pattern. Poised on either side are mother-of-pearl clouds. The lapis disk carrying the balance wheel “sun” and the nighttime moon rotates once every 24 hours. One more function was woven into the day/night display. The upper arm carrying the balance wheel “sun” is in the form of a hand which points to a 24 hour chapter ring encircling the lapis disk. Thus, there is a convenient precise indication of the 24 hour time which is artistically being shown with the sun and moon. More than a supplemental time indication, this hand actually is a key component of the movement as it serves as the bridge holding the balance wheel.





♦ *Day and night on the rotating lapis disk. The sun is represented by the balance wheel; the moon, a carved titanium disk, is set into the lapis.*

∞ *BUILDING ON THE CORE IDEA OF A TOURBILLON.*

The Reine de Naples rotates the key timekeeping elements of the balance wheel and the escapement one full turn every day.

The concept of rotation seems almost trivial: “*just turn them*”. However, as is the case for any mechanism which proposes to rotate the sensitive time keeping components of a watch, even at the slow speed of one turn per day, the design and assembly imposes stern demands on the watchmaker. To begin with, Breguet’s movement designers had to develop a system which could, on the one hand, rotate the disk carrying the balance wheel (and of course carrying the decorative lapis disk) and, on the other hand, power the escapement of the watch. The solution was to build a power train running from the mainspring barrel which is split; one gear train leading to a pinion to turn the disk (which can be analogized to the “cage” (sometimes referred to as the “carriage” which is used to rotate the timekeeping com-

ponents of a tourbillon) and a second branch leading to a wheel driving the escapement’s pinion. With this construction, the balance wheel is fixed onto a five spoke titanium cage with small teeth on its outer edge. Of course neither the fine teeth nor the spokes are visible from the dial side of the watch.

The novel placement of the escape wheel in the center of a rotating cage gave birth to an interesting set of design challenges. The first arises from the fact of combined rotations: the rotation of the escape wheel from the running of the watch mixes with the once a day rotation of the cage. This means that over the course of 24 hours, the combination loses 1 turn of the escape wheel. So the problem

∞ A DELIGHT TO BEHOLD.

*The 24 hour lapis disk with
its carved titanium moon, gold stars,
and mother-of-pearl clouds.*



♦ *The lapis disk carrying the moon and stars is mounted upon a rotating wheel.*

∞ ALL THE COMPLEXITY OF THE
 ROTATING DISPLAY IS HIDDEN.
 The romance of the dial side of the
 watch with its constantly rotating
 display of sun, moon, stars and clouds.

became how to correct for this “loss” of one turn. The solution was found by fitting the escape wheel with 21 teeth instead of the normal 20 or 15 teeth and fixing the frequency at 3.5 hertz. ¹

There was a second adaptation in the movement design which was required. The placement of the guilloché decorated balance wheel is quite close to the center mounted escape. Although the anchor is of the classic Swiss lever design, its length becomes the shortest of all of Breguet’s movements, and for that matter the shortest of all of the levers of serial produced watches in the industry. The horns of the inverted anchor’s fork, specially designed by Breguet, are fashioned in silicium as is the balance wheel spiral.

From the dial side of the watch all of these complex constructions are hidden. What the owner sees is the lapis disk with its sun, moon, clouds, stars and golden 24 hour hand. Arcing across the lower third of the disk is the chapter ring for regular the 12 hour time indication. Actually, that portion of the chapter ring is a functional part of the movement as it is the upper bridge for the rotating cage. There is a bit of poetry in the combination of the 24 hour and 12 hour chapter rings as they overlap each other forming an outline of the figure eight.

As the creation of these complications should not call for sacrifices in convenience, the Jour/Nuit offers automatic winding. The elaborately decorated gold rotor featuring a





carved moon face and gold sun rays rotates on a jeweled bearing system to wind the watch. In order to achieve a flat construction, without sacrificing efficiency, the winding is unidirectional.

The Jour/Nuit succeeds in being both mysterious and intriguing. Its outward appearance is deceptively simple: a classic egg shaped red gold or white gold case adorned with diamonds on the bezel and on the exterior of the hand guilloché dial and but three hands. As day becomes night, the positions of sun and moon slowly change, all the while revealing nothing of the existence of a divided power train, special running frequency, or unique location of the escape wheel. With its combination of enchanting displays and pioneering innovations in its complicated construction, the Jour/Nuit not only appeals on many levels, it secures its place as a watchmaking first.





LES SQUELETTES

By Jeffrey S. Kingston

The dawn of mechanical watchmaking occurred in the early 1500's, enabled by the invention of the winding barrel and mainspring which provided an energy source for a portable timepiece to run. Accuracy, however, was not the forte of these early watches; precision would not come until much later drawing upon Dutch mathematician Huygens' invention of the balance wheel and spiral. So removed from precision were these first watches that some were equipped with a crutch of sorts — a built in miniature sundial — so that owner had a means to divine the hour more accurately! With precision movements far off in the future, watchmakers took to other means to bestow value upon their creations, which was art. Enameling and gilding flourished in the century before balance wheel equipped movements were invented. At the beginning this lavishing of decoration upon watches was a way of signifying the worth and importance of the precious object and, for that matter, the owner. Regardless of the initial purpose, artistry and decoration established a firm foothold with watchmaking which has persisted even as the movements themselves grew valuable and important in their own right.



Skeletonizing of movements, although in one sense a vivid example of artwork brought to the watch, certainly merits being seen in a category completely apart from other forms of decoration. This is because skeleton art involves the very vitals of the watch's mechanicals. Almost all other artistic flourishes such as enameled cases and dials exist apart from the movement. But skeleton designs go to the very heart of the watch and, however beautiful may be the filigrees and carvings of the skeletonized movement, the timepiece must still function as it was designed. Seen this way, skeleton designs bring the artist and the watchmaker together in a way that no other artistic flourishes do.

Tracing the origins of skeleton constructions is a bit like wrestling with vapors; just when you think something is within your grasp, it disappears, not because the traces are

not there or are too diffuse, but instead because there is no clear definition of which early designs *actually are* skeletons. For example, an argument can be mounted that some of the earliest watches dating to the 15th century evidence a primitive form skeletonization, or at least presage it, with case openings conceived to reveal the mechanics inside. To be sure the movement plates were not open worked, nor were the bridges—indeed these watches had no bridges as that invention did not come along until two centuries later. Nonetheless, the *idea*, albeit nascent, of exposing intriguing running works was there and that, after all, is one of the core concept of skeleton time pieces.

Some may push to move the starting line forward to the gothic table clocks that appeared in the 16th century featuring an open iron frame construction which placed vital



◆ Mounting the tourbillon bridge for the *Classique Tourbillon Quantième Perpétuel 3795*.



components in full view. Arguably these approach more closely the idea of skeletonization in that considerably more was involved than merely cutting openings into a case, as much of the architecture of these timepieces was conceived to bring the vital clock works front and center for all to see. But of course, as these were clocks and not watches, they certainly belong in a different category.

To be true, nominating these early timepieces as the *first* skeletons requires a certain flexibility of definition and willingness to trade in broad concepts. Applying a stricter standard, wherein the timepiece must be, in fact, a watch and wherein classic plates and bridges must be open worked and decorated in order for the timepiece to qualify as a skeleton, shoots the time line far later to approximately 1760, just a few years before Abraham-Louis Breguet opened his workshop on the Quai de l'Horloge in Paris. Two French watchmakers vie for prize of first skeleton watch, Lépine and Caron. In both cases their creations featured movement plates that had been carved with openings to show the running train, barrels that were similarly sculpted revealing the mainspring, and a balance cock slimmed to a triangular form showing the components lying beneath. It is thought that the appearance of these unquestionably skeletonized timepieces is tied to the interest in fine mechanics by members of the royal Court. This was an age fascinated with the study of the sciences and tantalized by the fine instruments of its pursuit. Indeed, at the time the young Dauphin, destined to become the ill-fated Louis XVI, had taken up the hobby of working with watches and other mechanical objects and had outfitted what might pass as a kind of horological workshop in Versailles.

Almost all of core elements of today's *haute horlogerie* skeleton watches are evidenced in these first Lépine and Caron timepieces. Not only were the plates and bridges

∞ *ARTWORK BROUGHT
TO THE WATCH.*

Skeletonizing of movements merits being seen in a category apart from other forms of decoration as the designs go to the heart of the watch.

open worked, but they featured elaborate carvings and decorations on these functional components. Indeed, Caron, who was later to leave the craft of watchmaking behind to assume a career as a playwright under the name Beaumarchais and forever to be remembered for the character Figaro, carried the idea of movement decoration one step further fastening an enamel portrait onto the center. There is one key respect in which these Lépine and Caron watches diverged from what we see in today's skeletons. These were watches with standard enamel dials. Thus, the skeleton work was only visible through the case back glass.

It must be said that Abraham-Louis Breguet was not given to falling into this fashion that flourished so briefly in



∞ SKELETON DESIGNS
ARE A TESTAMENT TO THE SKILL
OF THE WATCHMAKER.

*Skeleton work brings together both
technical and artistic crafts.*

Paris. His design sensibilities were oriented differently, toward function, precision and practicality rather than fanciful decoration. Take, for example, his pioneering introduction of *guillochage* to the dial. This aesthetic element, which became a signature of his timepieces, was adopted pragmatically as a way to enhance legibility of the hands and to define zones on the dial.

There is an important perspective that modern Breguet has brought to the craft of skeleton construction. Although the open working of the plates and bridges does not endow the watch with additional performance, the artistry of the design and execution is a powerful testament to the consummate skill of modern Breguet's watchmakers. In the same

way that difficult complications are a statement of watchmaking art, so, too, are the fine filigrees of skeletonized movements. Both place on display the *savoir-faire* and talents of the watchmakers who create them.

There is an important line, though, which must be drawn. There are many timepieces found on the market today—not made by Breguet—which exist in a category different from hand-made skeletons. These watches feature “holes” in the plates and bridges placing components in view. The crudest examples offer parts that have been machined, using computer controlled equipment, to create the holes and evidence not a trace of hand finishing or decoration. Slightly more elevated are those whose “holes” have been machine polished. In both cases painstaking hand craft is absent. By any reasonable standard, these watches, notwithstanding the openings in some of their components, cannot be considered as equals of genuine classic *haute horlogerie* skeleton timepieces.

How does Breguet approach skeletonization? There are two principal crafts which must come together in the confectioning of a Breguet skeleton, one completely artistic, the other highly technical. Although the spirit of Breguet's modern skeleton timepieces is in keeping watchmaking tradition, certainly anchored in highly decorated pocket watches that emerged in the mid-1700's, there is one crucial difference. In the past, the watchmaker choices in determining the forms for the open worked components were largely driven by aesthetic considerations. Of course aesthetics remain vital today as well, but they are leavened by technical analysis as Breguet's movement designers carefully analyze and study how the open worked components will perform when subjected to shocks. There can be no compromise in performance by reason of the open working and careful computer simulations are run to validate the designs.



◆ Mounting the calendar plate on the reference 3795.



∞ *THE SIGNS OF PAINSTAKING
HAND WORK.*

*When examining a skeletonized
timepiece look for sharp interior angles;
they signify that the finishing
was done by hand.*

Today there are four timepieces in the Breguet collection featuring skeleton movements: the platinum Tourbillon Squelette, reference 3355; the Tourbillon Messidor, reference 5335; the Tourbillon Quantième Perpétuelle reference 3795; and the High Jewelry Chronographe, reference 5238. The Tourbillon Messidor is unique in this list as it was designed from the very beginning as a skeleton and there is no corresponding version which is not opened worked. And although not offering a fully skeletonized movement, many references, such as the Tourbillon Automatique, reference 5317 and Calendrier Perpétuel, reference 5327 offer open worked winding rotors.

In contrast with the many mass produced skeletons found today, the plates and bridges of Breguet's skeletons are painstakingly hand worked. The graceful lattice works found on the mainplate, bridges and barrel cover all are meticulously hand dressed on the sides, a finishing process termed "*étirage*", and then beveled first with a hand file and later with wood, to achieve a gleaming *anglage* finish. For example, for the Tourbillon Messidor 100 hours are required for the hand finished *anglage*. For those with trained eyes it is easy to spot the difference between those timepieces with hand filed *anglage* and those either unfinished or finished with electric tools. The telltale signs emerge with an inspection of the interior and exterior angles (watchmakers term the interior angles "*angles rentrants*"). Only with hand filing is it possible to achieve magnificently sharp and gleaming interior and exterior angles. If those same surfaces are treated with a machine, the interior and exterior corners will be rounded. So it is that with a watch in hand, knowledgeable connoisseurs immediately zero their inspections in on those all-important interior and exterior angles that separate true hand craft from mass production machined parts.

Hand filed *étirage* and *anglage* are only the first steps in the finishing as practiced at Breguet. In the case of the Tourbillon Squelette, Tourbillon Quantième Perpétuel, and the High Jewelry Chronographe the flat surfaces are finely carved with a variety of decorative motifs, an art form which is termed "*ciselage*". In the case of the Tourbillon Messidor, in place of a *ciselage* carving, the flat surfaces have a fine hand brushed ("*brossage*") finish applied. In both cases, these finishing processes require many hours of hand work.

Hand applied *étirage*, *anglage*, *ciselage* and *brossage* all are in and of themselves crafts that demand years of training to master for any watch component. However, they become





♦ Examining the calendar plate on the plaque rectifier to verify flatness.

exponentially more difficult with an open worked part. Consider how many more surfaces require finishing. With a standard component, there is only the single exterior edge and, if the component is to be carved, only the single exposed side to be addressed. Now, conjure up the image of a skeleton component. In addition to its exterior edge, the open working creates *interior* edges and, not only is hand finishing vital for both sets of edges, but often it is the interior edges which are the most difficult to work upon. Next, imagine a hard carved component. With sapphire crystals on both the front and back of the watch, many components are visible from both sides. Thus, decoration is called for on both the front and back of the component. And imposing further demands upon the watchmaker, in order to add interest to the timepiece, Breguet varies the carving motifs from the front to the back. Beyond this significant increase in the amount and complexity of hand finishing that must be applied, the components themselves are far more delicate and difficult to handle. When decorating the fine lattice work of a skeleton component, the watchmaker must take great pains not to deform or bend the part during the decorating steps. For all of the fine elegance of the finished decorated parts, it must be remembered that these are precision components and that the proper functioning of the movement requires that the hand work take nothing away from that precision.

That same exigency carries over when it is time for the watchmaker to assemble the movement. Each and every skeleton component is placed upon a highly polished extra flat massive steel surface ("*plaque rectifier*") to verify that there has been no twisting or bending that occurred during decoration. Even the slightest degree of distortion risks adversely impacting the running of the movement. Imagine wheels and pinions designed to mate with tolerances measured in microns, engaging with a twisted plate or bridge.

∞ SKELETON TIMEPIECES

OCCUPY A UNIQUE PLACE IN FINE WATCHMAKING.

Producing a skeleton watch is extremely demanding of both technical and artistic skill.

Normally when conjuring the difficulties mastered by watchmakers in handling watch components, it is the miniscule parts that first come to mind. Even grasping one such small screw or delicate spring is a nightmare for the layman. Oddly, though, in the case of assembling a skeleton movement, it is the large components that present the greatest challenges. This is because these are the ones that present the greatest risk of distortion if handled incorrectly. The securing of every single part must be accomplished without the slightest bending and without introduction of tension.

Particularly challenging is the assembly of the main-spring barrel. With a conventional barrel, the cover is solid and is fitted into place, held to the barrel drum by friction.

As the part is solid, there is little risk of bending. The skeleton movement, however, features an open worked barrel cover which places the mainspring into view. The watchmaker must exercise extreme care when placing the cover onto the barrel. The friction fit must be perfectly even and flat to avoid contact between the cover and the mainspring.

Thus, it is that hand crafted skeleton timepieces occupy a unique place in the world of fine watchmaking. The Breguet craftsmen who fashion them are able to combine both artistry and technical skill as upon their workbenches they execute timepieces of breathtaking beauty and high precision.





The LOUVRE'S DESTINY

By Marie-Hélène Huet

◆ Inside the Cour Carrée (Square Courtyard of the Louvre)
1840-1845, Carnavalet Museum, Paris, France Archives Charmet

In 1685, André Félibien, who had been appointed by Colbert, Louis XIV's minister, *historien du roi et de ses bâtimens*, reminded his readers that "Alexander loved Painting and Sculpture and wanted to appreciate their beauty, not to work like a Painter or Sculptor, but to be able to judge of all things, like a great Prince would." And he added: "Because the Louvre will be ornamented in a way worthy of [Louis XIV], one will see his life and actions represented in such noble and various manners that posterity will not look elsewhere for subjects of study and admiration."¹ What surprises us today is that Félibien was not speaking of Versailles, but of the Louvre, a place Louis XIV had left a few years before to take residence in the palace that would remain so closely associated with his name. Indeed, the wealth of the Louvre Museum has somewhat eclipsed the magnificent palace that houses its collections and was for centuries the residence of French Kings.



Boatmen descending the Seine River in Paris around 1200 could admire two remarkable construction sites: Notre Dame, still in its early stages, on the left and, a little further on the right, the massive fortress built by King Philippe Auguste. With ten towers and a formidable dungeon, the first Louvre played a defensive role, protecting both the growing city and the cathedral builders. Though Kings lived there from time to time, the Louvre served mostly as arsenal and jail. Victor Hugo would later imagine it in his medieval Paris as an "that immense edifice ... a hydra of towers, giant guardian of Paris, with its four and twenty heads, always erect, with its monstrous haunches, loaded or scaled with slates, and all streaming with metallic reflections."² Indeed, notes former curator André Blum,

in medieval literature "the Louvre Tower, like the Tower of London, primarily suggests the idea of prison."³ At one point a menagerie was set up in the castle with lions fed by the King himself. The first hint of the Louvre's future function can be traced to King Charles V (1338-1380), who added two wings and assembled a magnificent collection of illustrated manuscripts in the Falconry Tower. But at the end of the Hundred Years War (July 1453), the kings had practically deserted the castle.

New visions

The first Renaissance King, François I (1515-1547), brought back from his Italian expeditions a new vision of art and architecture that privileged graceful symmetry over



◆ October: sowing the winter grain, from the 'Très Riches Heures du Duc de Berry' (vellum)
Limbourg Brothers (fl.1400-1416) / Musée Condé, Chantilly, France.

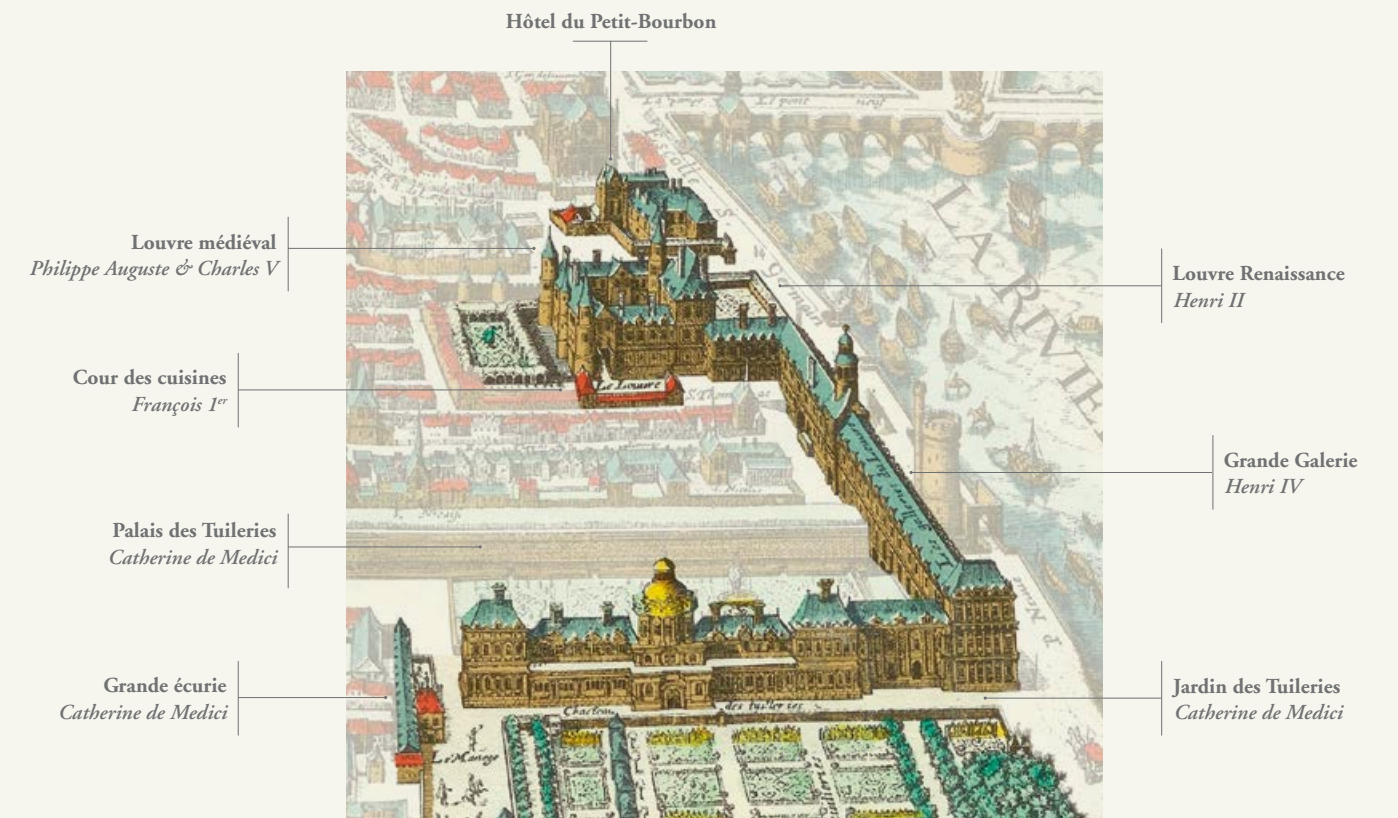
military strength. In 1527, he sent a letter to the municipality of Paris announcing his intention to make the Louvre his primary residence. The old dungeon was razed and the castle redesigned as a residence fit for a King. The modifications were far from completed when François I invited Emperor Charles V, his great rival, to visit him in Paris. The French King no doubt remembered his months of captivity at the hands of the Emperor and decided to dazzle him with his wealth: all the Louvre rooms were hung with precious tapestries and silk woven with gold and silver, windows were widened, the King's arms were painted everywhere. The Emperor was received with unprecedented splendor. But for all the festivities and pageantry, the imperial guest feared a ruse from his former prisoner and hardly smiled until his departure.

Soon after, François I^{er} charged Pierre Lescot and Jean Goujon with the task of transforming the Louvre castle into a Renaissance masterpiece. Their work can still be admired today, particularly in the *Cour Carrée*.

Let us pause briefly on February 12, 1556, when Pierre Lescot, presented to Henri II, François I's son and successor, his project for the ceiling of the formal King's apartment.⁴ Lescot's ceiling would be made of oak, walnut and linden wood. It was to be covered with gold and a central shield decorated with the arms of France. In the corners, Amazons would bear shields with the King's personal arms. Along the sides would run garlands of roses and laurels, horns of plenty and trophies. The Renaissance Louvre celebrated the Arts and the King's majesty at the same time.

Royal palaces, however, are not immune to the turmoil of history. The accidental death of Henri II in 1559 opened an era of religious conflicts that threatened royal authority and inspired Pierre de Ronsard's 1562 *Discours des misères*

de ce temps. Mourning her husband, Catherine de Medici, who had become Queen-Regent in 1560 after her son's François II's death, wore black for the rest of her life. She ordered the destruction of the Hotel des Tournelles where her husband had been transported before dying and—perhaps to escape from the Louvre's memories—decided to build the Tuileries Palace where she planned to reside. The palace was constructed to the West of the Louvre. But the Queen would never use it: before the building was completed, her trusted astrologer Cosimo Ruggieri predicted that the Queen would die near a place called Saint-Germain. Catherine de Medici found that the Tuileries were built too close to a church named Saint-Germain l'Auxerrois, and left the Tuileries to other guests.



♦ The Louvre, the Palais des Tuileries and the Grande Galerie in 1615. Excerpt from Mérian's bird's eye-view plan.

With religious wars devastating France, the Louvre became the site of conspiracies, treasons, and a few assassinations. During the night of August 23-24, 1572, the Palace witnessed the Saint-Barthélemy massacre, when the Huguenots were hunted and killed without mercy; "As the poor people were slain their naked bodies were thrown into the Louvre courtyard, in full sight of the King, the Queen, and the entire Court, writes a witness⁵. Another witness added that King Charles IX himself, Catherine de Medici's son, shot with an arquebuse from one of the Louvre windows.

With the end of the Religious Wars and King Henri IV's accession to the throne, a new era of peace allowed important works of modernization and embellishments to resume.

Henri IV received guests in an immense Ambassadors Room covered with marble: "black, red, grey, jaspered, pink or veined marbles, nothing but marble from floor to ceiling (...) walls decorated with fluted columns and filled with marble statues."⁶ One entered the King's apartments, his minister Sully tells us, through a large *cabinet des oiseaux* some think may have been an aviary.

But Queen Marie de Medici resented her situation at the Louvre: Henri IV lodged his mistresses there, oblivious to the constant quarrels that resonated through the private apartments. After Henri IV's assassination, in 1610, the Queen-Regent gave order to build the Luxembourg Palace and moved there briefly, before the work was even completed.

∞ "BLACK, RED, GREEN, pink, or veined marble from floor to ceiling (...) walls decorated with fluted columns and filled with marble statues."

However, her son King Louis XIII loved the Louvre. Had he inherited his father's taste for birds? The Duke of Luynes, his favorite, and *maître des oiseaux* of the King's Cabinet, trained falcons, and the King had a large aviary installed in the Italian-style gardens. New plans were designed with a view to quadrupling the surface of the Louvre and making important improvements to the lodgings.

Palatial lifestyle

Louis XIV oversaw at the same time the ambitious projects for the Louvre and the building of Versailles. He had spent his childhood in the Palais-Cardinal (now Palais Royal), and had left the city during the troubles that erupted with the Fronde, when the aristocracy rebelled against the monarchy. Back in Paris, Louis XIV moved to the Louvre in 1652 and would remain in the Palace for more than 25 years. Two rooms in particular illustrate the lavishness of the time. One was the splendid "room for baths" Anne d'Autriche, the Queen Mother, installed in her apartments: "The bathroom we have seen built," writes

Henri Sauval, "was supervised by Jacques Lemercier; gold has been profusely used everywhere; the wood panels are decorated with fruit baskets, moldings enhanced with gold, enamel and painting, all done with such art that they deceive the eyes and hands of those who look at them; on the floor, the bath rests on just six black and white marble columns with bases and capitals in fired-golden bronze." The exquisitely beautiful columns are made of such varied marbles, Sauval added, that one doubted "if the Greeks and Romans ever found their equal."⁷ The paneling was decorated with royal portraits or allegories of the Queen's virtues.

The other room was the new Apollo gallery decorated by Lebrun in 1661. The paintings showed the course of the sun portrayed as the Greek God. It was the first year of Louis XIV's personal reign: but the Sun-King had already defined his image. The splendid lifestyle favored by the King transformed the Louvre, now filled with large ceremonial dinners, receptions, ballet and theater; starting in 1658, Molière and his troupe gave numerous representations in front of the King and his Court. In fact, one could say that the Louvre served to try out and perfect the ornamentations and rules that were to immortalize the King's glory. Before working on Versailles, Le Vau supervised the Louvre's architectural projects and Lebrun its decorative paintings.

Louis XIV abandoned Paris for Versailles in 1682. The Louvre and the Tuileries palaces would not host any king until Louis XVI and Marie-Antoinette's forced return to Paris in October 1789 at the beginning of the French Revolution.

From Salon to Museum

The first public art exhibit in France opened in the Luxembourg Palace in October 1750. The 99 paintings and



♦ Interior view of the Apollo Gallery (photo), French School, (17th century) / Louvre, Paris, France.



◆ Ceiling of the Apollo Gallery: "Apollo slays the Python", by Eugène Delacroix (1798-1863).

∞ *"ONE HEARS NOW OF A GREAT AND MAGNIFICENT PROJECT that will result in the most beautiful temple for the arts that has ever been... the Apollo Gallery will be restored (...)"*.

20 drawings on display came from the King's collections. The main schools—Flemish, Italian, French—were organized in chronological order, and the public could admire for the first time the large paintings Rubens had completed for Queen Marie de Medici. The exhibit was open to the public on Wednesdays and Saturdays.⁸ It closed in 1779 when King Louis XVI gave the Luxemburg Palace to his brother the Comte de Provence. At this time, a move to open the Louvre Great Gallery more permanently to the public was considered.

Indeed, while the King and the Court had left Paris for Versailles, the Louvre had not been empty: many members of the nobility and courtiers had received permission to use the apartments; several administrative entities had moved there as well, including the Académie Royale de Peinture et de Sculpture which, in 1699, had opened for the first time its biennial exhibit in the Great Gallery⁹. Unlike the Luxemburg exhibits, the Académie only showed a selection of works by its members. During these years, the Louvre continued to be improved and modified. By the end of Louis XV's reign (1774), the *Cour Carrée* and the beautiful Eastern façade had been cleared of the additional constructions that concealed their harmony and initial design.

A plan to move the King's collections to the Louvre had been discussed for some time when M. de Marigny submitted to Louis XV a project that was approved on January 3, 1768. In that year, a contemporary author wrote: "The King's paintings, the richest collection in the world, have been hidden in storage. One hears now of a great and magnificent project that will result in the most beautiful temple for the arts that has ever been ... the Apollo Gallery will be restored and the salon where paintings are shown properly decorated ... the King's precious painting collection will then be placed in the immense Louvre Gallery ... where the public will enjoy all these riches."¹⁰ Unfortunately, the royal finances could not support the considerable modifications necessary for the projected move and Jacques-Germain Soufflot, who was the main architect then assigned to the Louvre, died in 1780. Still, the inventory was ready and the last decisions had been made when the French Revolution transformed, once more, the Louvre's destiny.

The Museum and the nation

Along with the important reforms that were implemented during the first years of the Revolution, the Constituent Assembly voted on May 26, 1791 to make the Louvre and the Tuileries "a national palace to serve as the King's residence and the reunion of all the monuments of sciences and the arts." In his report, Bertrand Barère, who had presented the motion, also noted: "The restoration of the Louvre and the Tuileries in order to give the constitutional King a residence worthy of the French nation and to create an illustrious Museum, will require further measures that will be taken in concert with the King."¹¹ The dramatic events that followed did not allow the project to be implemented. But after the insurrection of August 10, 1792 when the King was deposed, a commission was created in order to organize the transfer to the Louvre of all the works of art still in royal residences and now the Nation's property.

At that point, the new government had to face the foreign armies that threatened its frontiers as well as civil wars in Vendée and Brittany. Far from being abandoned, the project of creating a national museum became more urgent. The Museum would be the symbol of a nation united in its admiration for the Arts. Pressed into action, the Arts Commission planned a public opening of the Louvre on August 10, 1793, the day of the Festival of National Unity organized by the painter Jacques-Louis David. But, for better or for worse, visitors had to wait until November, 18 to admire the works shown in the Great Gallery and buy the *Catalog of Objects in the Gallery of the French Museum*.

The Louvre Museum was born, though it would also remain a sumptuous residence for many years. Napoleon organized the celebration of his wedding to Marie-Louise of Austria in the *Salon Carré*; it was followed by a solemn procession through the treasures hung in the Great Gallery. The Emperor himself added to the Louvre collections the considerable riches he had brought back from his

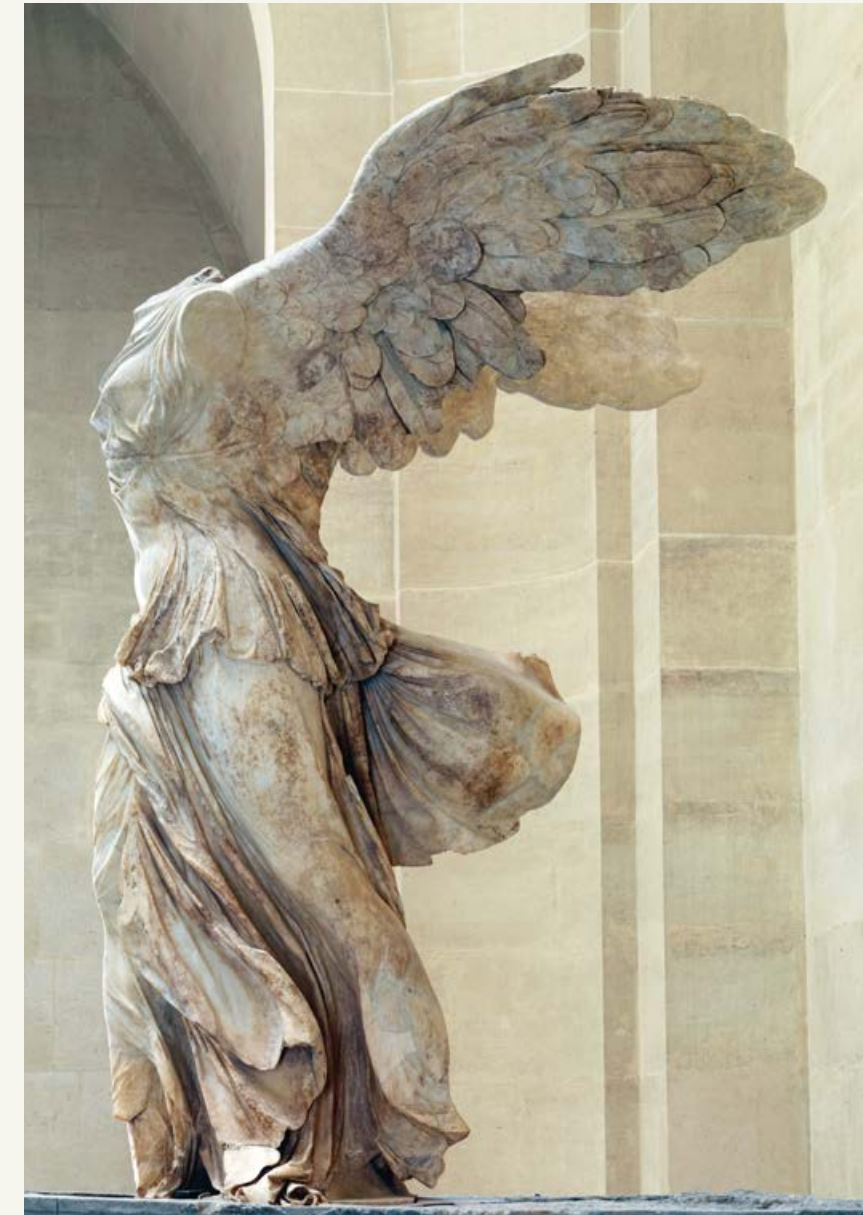
conquests: among them, the horses from St Mark's Basilica in Venice and the magnificent statue of Laocoon that belonged to the Vatican. Most of these works were given back or dispersed by the allies at the end of the Empire.

But during the nineteenth century, some of the most celebrated works of art were permanently added to the Louvre collections: the Venus of Milo, given by the Marquis de Rivière to Louis XVIII in 1821, and the Victory of Samothrace, found in 1863 by Charles Champoiseau, then vice-consul at Andrinopolis. The great architectural project connecting the Louvre to the Tuileries was completed during the Second Empire, so that Napoleon III solemnly declared on August 14, 1857: "The completion of the Louvre was not the whim of a moment, but the achievement of a great design that was sustained by the spirit of the nation and lasted more than three hundred years."¹²

The "great design" would again be modified a number of times: the Tuileries burned down on May 23, 1871.

∞ THREE WARS

would further disrupt the Louvre's destiny as national museum. Their scope is perhaps best described by the adventures and tribulations of Mona Lisa. The painting had quietly entered the Museum in 1797. During the Franco-Prussian war (1870) the painting was hidden in the Brest Arsenal. In 1911, it disappeared, stolen by an Italian glassmaker and art lover who took refuge in Italy where the work was recovered 3 years later. Mona Lisa returned to the Louvre just 6 months before WWI broke out. The painting was moved again, and hidden first in Bordeaux, then in Toulouse. A year before WWII, curators prepared to hide the Louvre treasures once again, Mona Lisa, the Venus de Milo, and the Victory of Samothrace would all be crated and moved to a variety of secret destinations.



◆ View of the Victory of Samothrace in the Louvre museum, 1935, Paris, France



♦ Merry-Joseph Blondel, Paris, 1781-Paris, 1853
"France, surrounded by legislating Kings and French Jurisconsults receives the constitutional charter from Louis XVIII."
 Dated and signed: Blondel. 1827.

This destruction, however, opened up new vistas in which I.M. Pei's glass pyramid would later find a natural space.

Returning to the Louvre

Horology connoisseurs and those who love the eighteenth century will be particularly interested in a renovation project that was recently completed: that of the Counsel of State rooms and the Salon Beauvais, located on the second floor of the Sully wing. These rooms will house the important collections of furniture, bronze, and ornamental vases that testify to the exquisite taste of the Old Regime. The Counsel of State rooms were decorated by various painters charged with representing memorable events of French history. "Victorious France at Bouvines" celebrates the greatest victory of the King who had built the first Louvre. This ceiling was painted by Merry-Joseph Blondel (1781-1853), a neo-classical artist who also painted the octagonal ceiling in a second room, showing France receiving the constitutional charter from the hands of King Louis XVIII. Another painting, by Jean-Baptiste Mauzaisse



♦ Salle Gilbert and Rose Marie Chagoury. Panels, furniture, and objects of art around 1700.
 Louvre Museum, Department of Objects of Art.



◆ On the left: Marie-Antoinette's writing table, private cabinet, Saint-Cloud; Prince de Beauveau's collection; Empress Eugénie's blue drawing room in the Tuileries palace in 1865

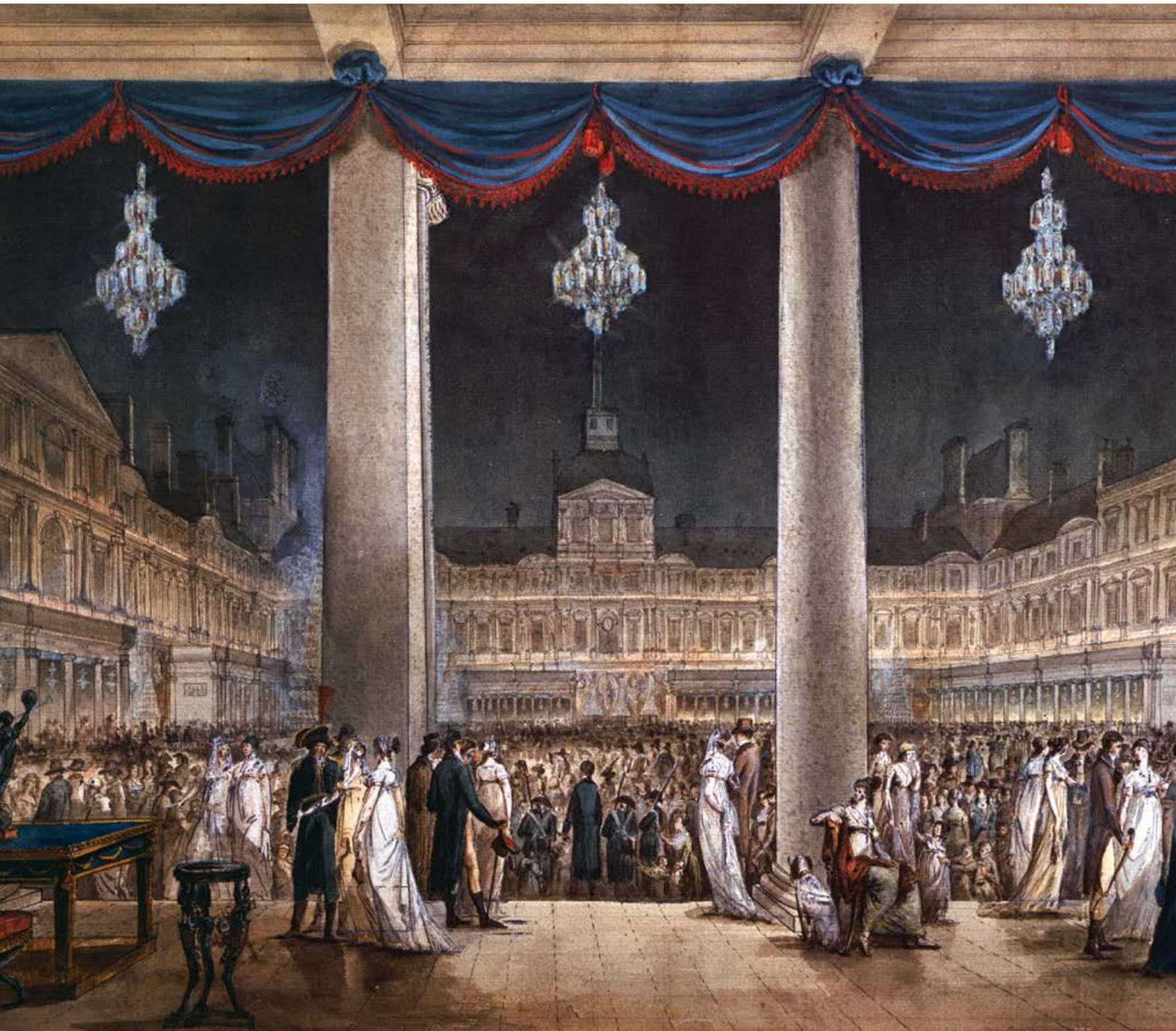
◆ On the right: console from the Comte d'Artois' Turkish cabinet in his south wing apartment at Versailles.



(1784-1844), "Divine Wisdom giving laws to kings and legislators surrounded by Equity and Prudence," celebrates both the legitimacy of the Bourbon Kings' return to the Throne and their wise decisions. A last work by Michel-Martin Drölling (1789-1851) is described as: "Law descending on earth, establishes its Empire and distributes its kindnesses."

Among many treasures, three exceptional pieces of furniture will remind us of the aesthetic currents that dominated Abraham-Louis Breguet's time. The first one is the famous *commode dite au singe*, a chest of drawers made of precious wood and marquetry, richly decorated with bronze ornaments with, among them, a small monkey on a swing. Charles Cressent was famous for his talents as a cabinet maker and as a virtuoso bronze sculptor. The richly adorned chest, dated 1745, fully illustrates the rococo style of the first part of the eighteenth century.

A later piece will draw the visitor's attention: an extraordinary table/console made by Georges Jacob in 1781 for the Comte d'Artois' *Cabinet turc*. Turkish décor was extremely fashionable at the time: Queen Marie-Antoinette ordered her own Turkish cabinet, and the Comte d'Artois, Louis XVI's younger brother and future Charles X, had no less than three, one for each of his residences. This table console is supported by four sea maids in gilded wood, and although the general lines are more sober than the previous excess of the rococo style, the console gives full rein to the creative fantasy of the author.



♦ *Public Industrial Exposition in the courtyard of the Louvre in Paris, 1801, France 19th Century.*



♦ *Salle Gilbert and Rose Marie Chagoury. Panels, furniture, and objects of art around 1700. Louvre Museum, Department of Objects of Art.*

A last stop will bring the visitor to the writing table Marie-Antoinette ordered in 1785 for the Château de Saint-Cloud, Louis XVI had just given to her. Its creator, Adam Weisweiler, was just three years older than Abraham-Louis Breguet, and, like him, had arrived to the capital city full of dreams. Both men would succeed admirably, Weisweiler became a Master in 1777 and lost no time in establishing a shop, just two years after Breguet had opened his establishment on the Quai de l'horloge. Both artists were supremely aware of the changing tastes that left behind the superfluous ornaments that had characterized the first half of the century, in favor of pure forms whose enrichments served to underline rather than disguise the formal structure of their pieces. Marie-Antoinette's table is made of ebony, Japanese lacquer, bronze and steel, with a delightful book stand.

Breguet was no doubt already familiar with the Louvre when he participated in the third *Exposition des produits de l'industrie française* that took place in the *Cour Carrée* in



♦ The Louvre Museum Pyramid designed by architect I.M. Pei.

1802, when he received a gold medal. It was the beginning of a long association between the Louvre and the Maison Breguet. Vivant Denon, named that year first director of the Louvre, later acquired a Breguet repeating watch and a biscuit clock. The 2009 exhibition, *Breguet at the Louvre, an Apogee of European Watchmaking*, displayed the artist and watchmaker's most exceptional pieces.¹³ Mécénat Breguet participated in the recent renovation of the galleries devoted to eighteenth-century furniture and objects, testifying again to the long relationship between horology and the arts.

In 1948, the poet Léon-Paul Fargue published a moving love letter to the palace that had enchanted his Parisian youth. The Louvre visitor, he writes, discovers “secret shapes, colors, lights, fluids emerging from colored outlines ... The Louvre is alive with these exchanges between the passerby and the masterpieces.” “The Louvre genius”, he writes, “lies precisely in its offering a combination of past and present from which the unknown visitor draws new energies of art and taste, a union that disappoints no one.”¹⁴

¹ André-Félibien des Avaux, *Entretiens sur les vies et les ouvrages des plus excellens peintres*, Paris, 1685. p. 24, 33.

² Victor Hugo, *Notre-Dame de Paris*, Part III, translated by Isabel F. Hapgood.

³ André Blum, *Le Louvre, du palais au musée*, Paris, Milieu du monde, 1946, p.19

⁴ See Louis Hauteccœur, *Histoire du Louvre, Le château, le palais, le musée*, Paris, L'illustration, 1928, p. 20. We borrow the description from his text.

⁵ De Thou, quoted by Louis Hauteccœur, p. 24.

⁶ Henri Sauval, *Histoire et recherches des antiquités de la ville de Paris*, Paris, Moette et Chardon, 1724, vol. 2, p. 32.

⁷ Henri Sauval, vol. 2, p. 34

⁸ See Andrew McClellan, *Inventing the Louvre, Arts, Politics, and the Origins of the Modern Museum in Eighteenth-Century Paris*, Berkeley: University of California Press, 1994, pp. 13-14.

⁹ Prior to that date the Académie had presented its works at the Palais-Royal. In 1725, the exhibits moved to the Salon carré, and were then simply known as *Salons*.

¹⁰ Reboul, *Essai sur les mœurs du temps*, London and Paris, Vincent 1768, quoted in André Blum, p. 136.

¹¹ Cf. Blum, p. 146-147.

¹² Quoted by Hauteccœur, p. 99.

¹³ See *Breguet, an Apogee of European Watchmaking*, Musée du Louvre Editions, 2009.

¹⁴ Léon-Paul Fargue, *Les Grandes Heures du Louvre*, Paris, Les Deux Sirènes, 1948, p. 227-228.

LE QUAI DE L'HORLOGE

N° 4

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Switzerland
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SINCERE THANKS TO ALL BREGUET STAFF MEMBERS AND ESPECIALLY TO :

Christian Lattmann
Jean-Charles Zufferey
Vincent Laucella
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Alain Zaugg

ENGLISH ADAPTATION

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GRAPHIC DESIGN, PRODUCTION

TATIN Design Studio Basel GmbH

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PHOTOLITHOGRAPHY

LiquidWorks

PRE-PRESS AND PRINTING

Courvoisier-Attinger SA

PHOTOGRAPHS

Montres Breguet SA Collection
Joël von Allmen
Lionel Deriaz
Angelo Di Pietro
Éric Mercier
Anthony MENJOZ Photography

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Console table with four feet (detail), Georges Jacob, Paris, Louvre Museum. Photo © Louvre Museum, Dist. RMN-Grand Palais / Thierry Ollivier / page 102

Console table with four feet, Georges Jacob, Paris, Louvre Museum. Photo © Louvre Museum, Dist. RMN-Grand Palais / Thierry Ollivier / page 103 (right-hand picture)

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Printed in December 2014