JEAN DUNAND TOURBILLON ORBITAL
THE ULTIMATE EVOLUTION OF THE WHIRLWIND

THE FATHER OF THE MODERN TOURBILLON ERA – CHRISTOPHE CLARET

The tourbillon is unquestionably the most compelling expression of high watchmaking. Part kinetic sculpture, part chronometric device, the tourbillon has continued to fascinate collectors for over two centuries. It was created in 1795 and patented in 1801 by the legendary Swiss watchmaker Abraham-Louis Breguet, to compensate for gravity's erosive effect on a watch's delicate regulator system.
The tourbillon was a rare and mystical animal from its inception all the way through to the late 20th century, when only as the result of a handful of horological visionaries, the modern tourbillon era was born. While the manufacture Audemars Piguet and independent watchmaker Franck Muller have played instrumental roles in the proliferation of the contemporary tourbillon era, only one man has the legitimacy to be declared the father of the contemporary wristwatch tourbillon and his name is Christophe Claret.

Christophe Claret and Thierry Oulevay, co-founder Jean Dunand

Claret was initially part of a small team of high complication specialists that included two other modern watch making icons, Dominique Renaud and Giulio Papi. In the '80s the Swiss watch industry was apoplectically strafed by the Quartz Crisis and in the wake of this deracination of their beloved métier this heroic trio labored to resuscitate the high complication world of minute repeaters, sonneries and of course tourbillons. But it was Claret in particular who was the main catalyst of this rebirth. He subsequently parted company with the others to develop a specialization in striking watches and tourbillons and became the first watchmaker to create highly complex tourbillon and repeater ebauches (raw movements) that could be customized to clients' tastes. Claret was instrumental in the rebirth of the now legendary Girard-Perregaux tourbillon with three gold bridges and though with typical modesty he would never admit it, he has had his hand in the creation of the lion's share of modern wristwatch tourbillons.

Quietly intense with sharp piercing eyes, Claret has created the movements for some of the most legendary high complications in watchmaking history including Girard-Perregaux's Westminster chimed repeaters, the Opera 1, 2 and 3; as well as Ulysse Nardin's fabled Genghis Khan minute repeater, a tourbillon with moveable figures on the dial called jaquemarts that are set into action when the strike train is activated. Claret creates or has created tourbillons or repeaters for the kings of the luxury world including Harry Winston, Bulgari, Corum, Bovet, Parmigiani Fleurier as well as for exciting new independent brands like deLaCour, Delaneau and Jean-Mairet & Gillman. When asked why he decided to work with Claret to create his wildly creative Bitourbillon, a watch with two tourbillon regulators linked via a differential, Pierre Koukjian of Maison deLaCour explains, "From the pure desire to work with the very best in the business." Says Ulysse Nardin's owner Rolf Schnyder, "You could easily attribute the resurgence of the wristwatch tourbillon to Christophe Claret."

Today, success allows Claret to live something of a dream existence. His company, an 80-strong team, occupies a stunning manor previously owned by one of the most famous Swiss watchmaking families. But as watchmaking's golden age has returned, it has brought with it a thirst for greater horological creativity. It has been Claret's express desire to enact the new evolution of the modern tourbillon. As such, this watchmaking legend has stepped out from behind the scenes to form an enthralling horological alliance with Thierry Oulevay, one of the individuals responsible for the rebirth of Bovet. Oulevay is one of the industry's greatest champions of the fine arts and has played an instrumental role in the industry-wide revival of miniature painting, enameling, stone cutting and engraving. Together, these two horological visionaries have created Jean Dunand, a brand named for one of the Art Deco movement's favorite sons and dedicated to uniting the highest level of technical achievement with the most resplendent levels of craftsmanship and decoration to forge unparalleled high watchmaking poetry. Their signature timepiece, the Tourbillon Orbital, is one of the most vividly imaginative timepieces of the modern era and represents a technical and artistic triumph.

THE ORGINAL SUPER TOURBILLON - JEAN DUNAND'S TOURBILLON ORBITAL While the rest of the world has been focused on creating tourbillons that turn on multiple axes or even in faster revolving carriages, Jean Dunand has created one of the most totally original concepts in tourbillon movement design since Breguet patented his whirlwind in 1801.

So what makes the Tourbillon Orbital so ingenious? The movement comprises a flying tourbillon regulator (already a monumental technical achievement) and a watch barrel set opposite each other and fixed between two plates. These two plates then rotate on their own central axis, completing one revolution every hour. In technical terms, this means that the Tourbillon Orbital is both a traditional tourbillon with a balance and escapement that rotates on its own axis, as well as a carousel tourbillon where the entire mechanism rotates around a separate axis! The result is a tourbillon that appears to magically transmigrate around the circumference of the dial, orbiting around the central watch hands once every hour.

The profile view shows how the tourbillon is fixed between two mobile plates that rest on ball bearing races. Note the additional gold pillars which have been added to create balance around the perimeter of the movement for better rotation

While the Tourbillon Orbital represents one of the most important technical evolutions of the modern tourbillon, it was beset with immense challenges for Oulevay and Claret. According to Claret, the primary difficulty with this watch was related to finding a way to wind it when its barrel never stays in one fixed position. Claret explains, "Many people didn't think it was possible because they couldn't think of how to wind the watch. With a normal crown and stem this was impossible. We solved this by using a winding key in the back of the watch. This winding key couples with the barrel using a central wheel and a ball bearing. This works regardless of where the barrel is during the rotation of the two plates carrying the tourbillon. In addition, the winding key is also used to set the watch."

When asked why he would create such a challenge for himself, Claret humbly laughs, "Today many people are doing multiple axis tourbillons so I thought this was a more original and more poetic way to evolve the tourbillon." One positive effect Claret discovered of his orbital system was that, "Timing tests show that the combination of the rotation of the tourbillon and the rotation of the movement significantly improves the rate of stability (accuracy) for the watch, returning the tourbillon to its original role as a precision device."

So how exactly does the Tourbillon Orbital work? The movement consists of two fixed plates that carry the flying tourbillon regulator. The top plate includes the revolving dial decorated with Art Deco engraving. These plates also carry the watch barrel which contains the mainspring. The barrel unwinds against a central pinion. This action causes the rotation of the two plates and tourbillon around the dial. The tourbillon regulator serves to regulate the speed at which this rotation occurs, at one full revolution per hour.

The upper plate is skeletonized with Art Deco decoration to literally create balance between both sides of the top plate. Claret explains, "The side of the upper plate with the aperture in it for the tourbillon was lighter than the other side. So we skeletonized the other side to reduce mass by the exact amount equal to the material we removed to create the aperture. This gives balance in the plate." Similarly, looking at the architecture of the movement you'll see that the upper plate and lower plate are joined using small pillars. In fact, two additional gold pillars were added to improve weight distribution all around the perimeter of the movement which translates into easier rotation.

In addition to its unique orbital tourbillon, this ethereal timepiece also boasts a power reserve indicator that uses a vertical needle like the fuel gauge in a car, viewed from a lateral window in the case. On the opposite side you'll find a second lateral window that provides rare insight into the revolving microcosm within. A moon phase indicator has been added beside the winding key on the watch back for a bit of capricious charm. Finally, the tourbillon is mounted using a black ceramic jewel. Thierry Oulevay explains, "The original idea was to have precious stones. But by cutting a ruby or emerald that thin you lose all the color. So instead we decided to use ceramic."

This winding mechanism couples to the barrel using a central wheel and a ball bearing. It is also used to set the time

IN CONVERSATION WITH THIERRY OULEVAY, CO-FOUNDER JEAN DUNAND

WOULD YOU AGREE THAT MUCH OF THE MODERN TOURBILLON ERA CAN BE ATTRIBUTED TO CHRISTOPHE CLARET'S PIONEERING WORK? It is true much that the modern tourbillon era and the current resurgence can be attributed to one man, Christophe Claret. He is a leading watchmaker in three dimensional thinking, he is a visionary. He is a contrarian to the extent that he is always trying to innovate to do what has not been done before. But with any great modern artist, you need to have a sound grounding in classic art before you can innovate. Claret received that when he was one of the top restorers for vintage clocks. But his passion is for high tech industries like aerospace and his desire is to integrate functional aspects of these technologies in a beautiful, artistic timepiece.

WHAT WAS THE INSPIRATION FOR THE TOURBILLON ORBITAL? The inspiration for the Tourbillon Orbital came to Christophe one night when he was star gazing and he became enchanted with the way the planets turn on their own axes and also follow a path around the sun. So he began to think, "Can I make a tourbillon that rotates on its own axis but also orbits around the dial of the watch?" Immediately he recognized several immense technical hurdles, such as creating a power supply for the watch (barrel) that also orbited. This raised the issue of how could you wind this barrel if it wasn't fixed?

WAS THE INTENTION TO IMPROVE THE CHRONOMETRIC FUNCTION OF THE TOURBILLON OR TO CREATE SOMETHING EMOTIONALLY APPEALING? I would say while our watch is chronometric, the priority was to create a truly unique vision of representing time. If you think about it, time is man's method of charting the journey of our planet through the solar system. Claret thought it very emotive to have a watch that not only gave a reading for civil time but represented the nature of time itself.

HOW DID JEAN DUNAND COME ABOUT? I went to see Claret at the end of 2001. I knew him because he had already rendered some of the most divine high complications for us at Bovet, including the Butterfly Tourbillon. We have a mutual love for Art Deco and artisan crafts. At this point he showed me the Tourbillon Orbital. At the time he had showed it to a small handful of his clients and they had all thought it was too wild, too creative and technically too difficult. This goes to show you how ahead of his time Claret was. Because if you look at haute horlogerie today, the major growth in the high end segment has been in the creative expression of time, embodied by watches such as Harry Winston's Opus series (which Claret has contributed to).

WHAT DID YOU THINK WHEN YOU SET EYES ON THE TOURBILLON ORBITAL? I saw the complication and I said, "This is fantastic, let's do it." I had a vision of integrating fine arts into this watch in the spirit of Art Deco. But the process was extremely challenging because we were making something that had never been made before. In particular, we had to solve how to wind the barrel of a watch where the barrel was constantly moving. In the end, Claret created a central bearing that engaged the barrel and to me this was truly brilliant. The project took a bit longer than expected because after two and a half years we totally redesigned the movement to integrate the lateral power reserve indicator that you view through a window in the side of the watch. We were the first ones to create this concept and we had to pursue this because we wanted our watch to be without any compromise.

CAN YOU TELL US WHY YOU DECIDED TO PUT PRODUCTION ON HOLD TO CREATE A NEW TYPE OF POWER RESERVE INDICATOR? I was convinced the watch needed a power reserve. In fact we presented the watch during a global tour in 2004 and it was essentially ready. But I recognized that collectors want precision in terms of how much power remains in their timepiece. Claret replied, "The concept makes a power reserve impossible," because the barrel which is traditionally connected to a differential to create a power reserve indicator is constantly moving. I implored him. "Please try." One month later, he came back to me saying, "We have it."

WHY DID YOU CREATE A LATERAL WINDOW ON THE SIDE OF THE CASE? At the same time I wanted to have some way to exclaim the genius and sophistication of a movement where the entire mechanism is turning on its own axis. With a solid case watch this couldn't be seen. So I said, "Let's open up the movement to the world." I wanted to have side windows and so we combined this with the idea for the power reserve. This took another nine months to create but when the watch was delivered, we were totally 100 percent satisfied. I think its success speaks for all the attention we paid to the details.

WE FEEL THAT THE INDUSTRY HAS NOW OFFERED SEVERAL TOURBILLONS DIRECTLY INSPIRED BY THE TOURBILLON ORBITAL. HOW DO YOU FEEL ABOUT THESE WATCHES? I am certainly not offended to see watches that may have been inspired by us. But what is important for Jean Dunand is to stress the vast legitimacy with the Tourbillon Orbital as the watch that pioneered the orbital tourbillon concept. It's like in art — there are many that come after the first masterwork but in history it is always the originator that is valued most.

WHAT ARE SOME OF THE HIDDEN FACTORS RELATED TO THE CREATION OF THE TOURBILLON ORBITAL? If you talk to any great technical director, he will tell you that a lot of the cost of a true handmade tourbillon is the manual labor it takes to properly regulate and balance the tourbillon. A poorly balanced tourbillon will hurt accuracy while a finely tuned one will enhance accuracy. This is something that is not explained enough to collectors. Balancing a tourbillon can easily take hundreds of hours. Balancing a flying tourbillon as you find in the Tourbillon Orbital is even more critical because as opposed to a traditional tourbillon which is supported by a bridge, here the entire tourbillon is balanced on just one point on the pinion of the cage.

BUT NOT ONLY DO YOU HAVE TO REGULATE THE TOURBILLON, YOU HAVE TO ESSENTIALLY REGULATE THE ENTIRE MOVEMENT, CORRECT? That's right with our watch, regulating the tourbillon is just the beginning of the manual labor involved. In our movement, the tourbillon and the barrel are placed opposite each other and sandwiched between two plates. This entire assembly rotates and therefore must be perfectly balanced so as to enhance and not negatively affect timing accuracy.

So, after fine tuning the tourbillon, we need to regulate the entire rotating platform on which it is mounted. That is why on the top plate of the platform, you will see we've skeletonized the side opposite the tourbillon aperture to form an Art Deco palm tree pattern. There is a functional purpose to this. The removal of material serves to perfectly balance the entire rotating assembly. Look from the side of the watch and you'll see the additional gold pillars that have been placed around the perimeter of the platform, purely to ensure symmetrical rotation. Material is removed by hand from each of these pillars until the balance of the entire platform is perfect. I love how you see these pillars passing through the lateral window once an hour to remind you of the vast complexity of the mechanical miracle within.

IS IT TRUE YOU EVEN APPLY THE SAME OBSESSIVE NEED FOR BALANCE TO YOUR DIALS? We take things to the extreme. In our watch, the entire dial rotates along with the tourbillon and as such, the underside of the dial has material manually removed at points to render perfect balance. What you see with your naked eye is a wonderfully imaginative, highly refined timepiece that really elevates the tourbillon to an innovative art form. But the work that goes into this watch has been astronomical.

HOW DO YOU FEEL THE TOURBILLON ORBITAL WILL BE VIEWED FROM A HISTORICAL PERSPECTIVE? I feel that the Tourbillon Orbital will be a timeless watch, something that captures the status of a future classic because of the profound innovation it represents. It is also just the beginning of our evolution of this family. It was conceived to allow further complications to be added. It is the beginning of a new saga created by the most significant high complication masters of the modern era.

TELL US HOW JEAN DUNAND IS ONE OF THE FEW BRANDS TRULY MERGING HIGH TECHNOLOGY WITH ARTISAN CRAFTS... The reason we named this brand Jean Dunand is because he is one of my heroes, a major artist in different applied arts in the '20s and '30s. One of his strongest mediums was in lacquer. So we have invested a lot in the creation of new techniques for the application of this material on dials. For me, this is where the emotion and poetry enters a technical timepiece. The ultimate watch is a groundbreaking complication like the Tourbillon Orbital but paired with the best engraving or stone work or lacquer.

WHAT IS YOUR ANNUAL PRODUCTION AND WHERE IS YOUR BEST MARKET? We sold 30 watches in 2006 and we will sell 40 to 50 in 2007. We want the watch to be very rare. The United States has been our best market where there has been very strong growth in the ultra high end niche. There is a core group of clients who want the very best in terms of artistry and technology and we represent this. Nothing else comes close. Accordingly, we have forged great relationships with the most exclusive partners such as Cellini in New York and Wynn in Las Vegas who communicate this perfectly. ★