



THE JOURNAL

THE IWC “TOURBILLON SCHOOL”

BY DAVID SEYFFER

Since its founding in 1968, the IWC Apprentice Workshop has trained more than two hundred apprentices, while successfully keeping the tradition of fine watchmaking alive. What is not so well known is that the Apprentice Workshop has always been a wellspring of innovation – both instructors and apprentices have actively contributed to a wide variety of IWC timepieces. In an interview, Walter Baumann, who was director of the Workshop, reminisced about some of the most fascinating projects to which instructors and trainees have devoted their heart and soul, including IWC’s innovative version of the tourbillon.

IWC WATCHMAKER APPRENTICE WORKSHOP MARKS ITS 50 YEAR ANNIVERSARY

When Walter Baumann thinks back on the time he’s spent training apprentices at IWC, he makes it clear from the outset how important it has always been for

him to share his knowledge with the trainees while also helping them find their own way. It also brings to mind his own beginning with watches.

In 1962, he entered the Manufacture as a watchmaking trainee, and in 1966, he received his apprentice certificate from the Solothurn Watchmaking School. As an apprentice, Baumann had already been entrusted with several special assignments. He remembers very clearly when, in 1965, technical director Albert Pellaton tasked him with the adjustment of a large number of Mark 11 pilot watches that had been sent to Schaffhausen by the RAF for revision due to rate variations. The twenty-year-old tackled the job with remarkable enthusiasm, and other special assignments soon followed. One in particular would have a tremendous impact on his career path: the creation of the IWC Watchmaker Apprentice Workshop.

IWC
SCHAFFHAUSEN



IWC's Walter Baumann and Workshop apprentice (1973)

Baumann was placed in charge of outfitting the Apprentice Workshop with tools, machinery, components, and teaching materials. But he also went a step further, enrolling in courses in pedagogy and studying education and business organization in his free time. Then in 1968, as IWC was celebrating its 100th anniversary, the Apprentice Workshop opened its doors and Baumann was named its deputy director. He also became one of its pupils, obtaining his master's certificate in watchmaking in 1973. The Workshop celebrated 50 years of training apprentices in 2018.

During the crisis years of the Swiss watch industry, the Apprentice Workshop was one of the last bastions of mechanical watchmaking. At the time, the Swiss government was trying to put an end to the training of watchmakers, arguing that young people shouldn't be trained in a field with no future. Their attempts collided head on with the passionate commitment of the Apprentice Workshop instructors, and a special dispensation was made, enabling young people to continue to their training at IWC. And Baumann's commitment went even further: In 1979, he restructured the program and updated the curriculum to reflect the new world of watchmaking, one in which a mechanical watch was now considered a luxury good.

In the late 70s he was active in the crisis management committee of the Swiss watchmaking industry, working alongside Nicolas Hayek on a recovery plan for the sector. For Baumann, the art and knowledge of watchmaking has always been very close to his heart, so it is no surprise that he has always been so active in the industry, serving in an advisory capacity to a broad range of professional associations, organizations and schools all over Switzerland, while scrutinizing and continuously improving the training of watchmakers. Over the years, on Baumann's initiative, IWC has developed comprehensive training programs covering a wide variety of skills, including turning and milling, surface finishing, electroplating, design engineering, regulation, and sales. For his exceptional accomplishments at IWC, the management of the Manufacture conferred on Baumann the 2006 "Probus Scafusia IWC" award for his life's work.



Baumann in 2006

THE TOURBILLONS OF THE APPRENTICE WORKSHOP

The wide-ranging training program and the spirit of openness that reigns in the Apprentice Workshop have always fostered innovation. Since the early 1980s, IWC instructors have been deeply involved in the development of several new watches, such as the Ocean 2000 diver's watch, the Grand Complication, or the rare IWC Janus grandfather clock. Other special projects have included the skeletonization of watch movements, the manufacture of parts for the famous amagnetic diving watches for the German Navy Ref. 3519 AMAG, the reconditioning of classic caliber 8541 watch movements for the reference 1850, and gear cutting for the first Da Vinci movement (caliber 79061).



The IWC tourbillon

These fascinating projects were also hugely inspirational to the trainees. The apprentice certificate watches bear witness to the unbridled creativity of these prospective watchmakers. Baumann has always found it very difficult to decide which of all the projects or works presented for the apprentice proficiency exams have been the most impactful. But it is never long before the IWC tourbillon comes up in this conversation. With its demanding technology and incredible craftsmanship, the tourbillon ("whirlwind" in English) remains one of the all-time-great complications of watchmaking. The history of this complication began in the mid-1790s, when notable watchmaker Abraham Louis Breguet (1747-1823)

contemplated about how one could mitigate the near constant misalignment of the balance's center of gravity with respect to the earth's gravitational pull. Breguet came up with a brilliant idea: instead of correcting the positional error, he compensated for it. He constructed a tiny filigree cage in the movement, set the balance wheel in the middle, and placed it alongside the escapement. The structure rotates, usually once per minute, and the disruptive influence of gravity is negated. For the precision of pocket watches, which are usually worn in one position – with the crown at the top – this resulted in a significant improvement in precision.

In 1801, Breguet patented his invention in Paris, calling it "*Regulateur à tourbillon*." Apprentices repeatedly asked Baumann about the famous tourbillon technology, and eventually their insistence would push the entire firm forward. In 1986, IWC tackled the construction of its own tourbillon. Baumann was joined by Richard Harbring and Kurt Kerber, and they devoted themselves fully to the project. Of the three, Kerber had the most hands-on experience, and he became known for his unbounded determination to bring the project to fruition. Their first drafts were inspired by a book published in 1927, entitled "*Drehganguhren (Tourbillons und Karusselluhren)*" [Tourbillon and Carousel Watches], written by Alfred Helwig. A fine watchmaker in his own right, Helwig was the inventor of the flying tourbillon, which lacks the upper bridge on which the cage is normally mounted – the cage is exclusively mounted on the bottom.

The IWC project team had to start work on their tourbillon from scratch. Baumann had the idea to use the classic IWC caliber 853 balance spring, which meant they had to adapt to its unusual frequency of 19,800 beats per hour. Movement parts were milled, cut, and adjusted repeatedly, which led to several new ideas, including mounting the tourbillon on a ball bearing and using titanium parts to reduce weight. In the end, the tourbillon weighed just 0.296 grams. To manufacture these components, IWC drew on its decade of experience working with the metal.

After several years of rigorous development, the first IWC tourbillon was completed. Senior managers decided to task the Apprentice Workshop with the construction of the “Il Destriero Scafusia”. Composed of 100 individual parts, this watch was to showcase the outstanding technical abilities of the Manufacture on the occasion of its 125th anniversary in 1993. The tourbillon was just one of its 21 complex functions.

Enthusiasm for IWC tourbillons remained undiminished in the Apprentice Workshop, as so many of the apprentices had been so deeply involved in the maiden effort. Two apprentices, Thomas Prescher and Peer-Olaf Jansohn, expressed a special wish to Baumann: For their apprentice certificate watches, the pair wanted to fit a tourbillon into classical IWC pocket watch movements. Baumann enthusiastically supported the project, and it was decided that the caliber 9720 pocket watch would serve as the base movement. In order to integrate the tourbillon, the construction of several parts had to be modified while others had to be constructed from scratch. The three-quarter bridge was milled and decorated with circular *Côtes de Genève*, and the cage of the tourbillon was milled in the first phase and then cut out using wire erosion. Finally, it was polished and the edges were beveled. It came at a cost of hours of overtime in the evenings and weekends, but through it all, the apprentices – always energetically supported by Baumann – learned the art of hands-on watch-making.

Their excitement for the project was contagious, and as a result four more pocket watch movements fitted with a tourbillon – all starting the caliber 97 movement – would emerge from the Apprentice Workshop. Michael Dubs began with the caliber 9720 movement, eventually placing it in the case of a Portuguese anniversary watch from 1993. The resulting piece perfectly embodied the ideals of the classic Portuguese watch and its austere beauty. Markus Bühler, well known to many IWC watch collectors for his work on the Ref. 5003 “Markus Bühler” Big Pilot’s Watch, assembled a caliber 9721 movement with both a tourbillon and a calendar. But that wasn’t

enough for the innovative designer – his pocket watch was modeled after a classic Navy chronometer, created a special case made from a small piece of wood from the staircase of a St. Gallen church. And just like the navy chronometers of yesteryear, his watch was then gimbal mounted in the case to compensate for the movement of a ship traversing the high seas.



The Markus Bühler tourbillon

THE IWC TOURBILLON · AN INTEGRAL PART OF THE COLLECTION

Without the passion, commitment, and knowledge of the instructors at the Apprentice Workshop, the IWC tourbillon might never have come to be. Since the launch of the Il Destriero Scafusia, the tourbillon has not lost any of its fascination. The just-launched IWC launched the Big Pilot’s Watch Constant-Force Tourbillon Edition “Le Petit Prince” is a testament to this fascination.

To celebrate the new millennium, the Manufacture presented the “Da Vinci Tourbillon”. Its perfect mechanics can be seen through the sapphire crystal

caseback with the IWC minute tourbillon serving as the centerpiece in terms of both design and function. Since the end of the 1990s there have been ideas about using the tourbillon in the Portugueser as well. In the spring of 2004, IWC launched the “Portugueser - Tourbillon Mystère” (Ref. 5042). The technical challenge for the designers lay in the integration of the tourbillon into the caliber 5000. The outcome was the caliber 50900, featuring a tourbillon consisting of just 81 parts and weighing only 0.433 grams that rotates once per minute as if it were levitating. The key features of the base movement, such as the Pellaton winding mechanism and seven-day power reserve, have been preserved.



Big Pilot's Watch Constant-Force Tourbillon
Edition “Le Petit Prince” (IW590303)

The new, exceptionally precise constant-force tourbillon was presented in 2011 in the “Sideral Scafusia” watch. It keeps the amplitude of the balance spring absolutely constant, thereby maintaining perfect

accuracy since the escapement is disengaged from the direct flow of force from the gear train. The power is stored temporarily in the spiral spring and released in the escapement wheel. The spring is retightened once every second, which is why the seconds hand in the tourbillon jumps forward in one-second intervals, which makes for extremely even and accurate operation.

A VERY SPECIAL MUSEUM EXHIBITION

The origin of the IWC tourbillon is unique and storied. It will always stand firm as one of the Manufacture's grandest achievements, and the IWC Museum is pleased to present the history of the IWC tourbillon in a special exhibition showcasing examples of the works of apprentices and iconic IWC tourbillon models. The exhibition will be open for viewing from the beginning of December until the middle of May 2019, during the regular opening hours of the IWC Museum.