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The 1f4, designed by
Dominique Loiseau

BY JONATHON KEATS

Manual Dexterity

Independent watchmakers
restore the fading “by hand” ethos.

HAVING LEARNED THE CRAFT of watchmaking at exactly the same time quartz technology was making his new skills obsolete, Dominique Loiseau probably had little notion his career would carry him in the exact opposite direction of the watch industry at the time. Just a few years later, his work restoring masterpieces by Pierre Jaquet-Droz and Abraham-Louis Breguet had inspired an idea. “I decided to make a watch with my own hands,” he says, “and I decided that it should be the first grand complication pocket watch, the most complicated pocket watch of the time.” When it was complete in 1984, a collector bought the Renaissance, as he called it, for 450,000 Swiss francs. “The reaction in the media was astonishment,” he recalls, “but not in the way that you’d think. They said my watch was the last firework in mechanical watchmaking: not a renaissance but the end.” ▶

The media could not have been more mistaken. If anything, quartz has been the handmaiden of a renaissance in mechanical watchmaking over the past few decades. But while traditionally designed movements once again occupy a position of prestige, most of them are made in ways the past masters would hardly recognize. Mass production methods, including almost universal use of computer-controlled CNC machines, offer

many manufacturing advantages, but have lessened the culture of quality for which watchmaking was once known.

A few independent watchmakers—including Dominique Loiseau—have each in their own way taken the quartz crisis as a personal challenge, exploring the potential of mechanical accuracy, expanding the gamut of complication, and questioning the values of mass production.

Bespeaking a true renaissance, none of these watchmakers is anachronistic. On the contrary, many of them see handcraftsmanship as a path to innovation. Loiseau may be the most puritanical in his definition of handmade, relying entirely on traditional tools such as the hacksaw and drill, and banishing CNC machines from his atelier. He compares these hand tools to the modest utensils of artists. “While using identical traditional brushes and canvas, Velázquez and Picasso produced entirely different masterpieces,” he argues. “Hand tools remain the most creative and simple way to create unique objects in full freedom. Machining presents certain constraints dictated by the machine’s own limitations.”

The Pulsographe (below) and Régulateur Nautique Chronographe (opposite) from Montblanc



The only computers in Loiseau’s atelier are those run by his daughter to generate CAD files, which he says “help to control the volumes but are only a support to the human brain.” Watchmaking for him is primarily a mental game, which he compares to chess. He has even dubbed the first wristwatch produced under his own brand the 1f4, after a famous chess opening, explaining that “you must be strategic to place the 891 components of the complicated movement into a volume specified by the aesthetic of the whole watch.” And to be able to produce the wristwatch—at a rate of two pieces per year—you must be able to match acumen with virtuosity, as he and three fellow craftsmen do, with special attention to finishes that enhance the natural beauty of their raw materials.

While already strategizing his next timepiece—a sports model designed for yachting—Loiseau acknowledges that handcraft is too labor-intensive for most watches. Recently hired as a consultant for Girard-Perregaux, he is prototyping a new grand complication in his atelier (completely by hand, of course), which will be the crown jewel in a series to be produced by G-P, he says, “in a more semi-industrial way.”

Girard-Perregaux is not the first large company to recognize the creative potential of handcraftsmanship. Back in 2006, the Richemont group acquired Minerva, a 148-year-old *manufacture* in the Swiss ▶

town of Villeret, which the luxury conglomerate rebranded as Montblanc Villeret 1858. At the time, Montblanc was known for commercial-scale production of fashion watches, while Minerva was esteemed for making chronographs by hand, completely in-house, under the direction of master watchmaker Dimitri Cabbidu. “Certainly the decision of Richemont to devote our business to Montblanc troubled me,” Cabbidu recalls, admitting that it took some time for him to

perceive the merger as an opportunity rather than a threat. “The advantage of being with Montblanc is to receive financial support that allows us to continue our activity in the same spirit as the past.”

As was the case for Loiseau, Cabbidu’s past was very much informed by the quartz crisis. “At first I looked at quartz admiringly,” he says. “My school piece was a quartz watch, which helped me to better understand quartz, but at the same time I felt unable to control anything. I was dependent on the electronics, and afraid that *horlogerie* would be lost.” One workshop that employed him after his training only reinforced his sense of foreboding. Though they handcrafted traditional mechanical movements, “the men were all almost at the age of retirement.” After a stint at Gerald Genta in the ’90s, hand-making complications atop movements from other manufacturers—“we accepted what the supplier offered us”—he finally attained the self-sufficiency he craved when he was hired by Minerva in 2001.

Unlike old men, old equipment need never retire, and inside the Villeret *manufacture* Cabbidu found antique machines that could still be relied on to stamp out bridges or to coil springs with Minerva’s signature quality. Next to these he installed new spark erosion and CNC machines, affording him the flexibility to produce parts never before conceived. Together with traditional hand tools, these machines give Cabbidu “autonomy over technology and aesthetics,” he says. “For instance, our mastery of the spiral allowed us to test and find practical solutions to the theory underlying our Tourbillon Bi-Cylindrique,” in which two nested hairsprings counterbalance one another.

Keeping everything in-house also allows his 40 craftsmen each to make watches from start to finish, at a rate of approximately one watch a month, ensuring the highest quality. “Asking a watchmaker to create a timepiece in its entirety will involve him in his craft more fully and enhance his work,” says Cabbidu. Such attentiveness is demanded by design. “The process of handwork is already imagined during development, with complexities that need hand-finishing to meet the technical and aesthetic criteria. If we take the Grand Chronographe Régulateur, for example, the power reserve system and bridges hidden under the dial are hand-finished to the same standards as the visible parts.”

For all the novelty of the Grand Chronographe Régulateur and



Tourbillon Bi-Cylindrique, finishing techniques such as polishing with the stems of wild gentian flowers would have been familiar even to Minerva founders Hyppolite and Charles-Yvan Robert. “I think they would recognize their touch,” Cabbidu says with satisfaction, “and I think that they would be proud of the qualitative and aesthetic evolution.”

Roger Smith’s relationship with his horological forebear was far more immediate. Smith was the only apprentice of Sir George Daniels, recently deceased, the man who single-handedly revived British watchmaking in the 1960s and invented the coaxial escapement. Smith was a 17-year-old student at the Manchester School of Horology in the late ’80s, training to work in the quartz-run industry, when he first heard Daniels lecture. Daniels showed that mass production was not the only way, and that it was even possible for one man to make a watch entirely on his own. That evening Smith decided that making watches by hand would be his *métier*.

Smith spent a year and a half building a pocket watch, following the instructions in a textbook Daniels wrote, and brought his timepiece to Daniels’s Isle of Man workshop. “George told me that it shouldn’t *look* handmade,” Smith says. Smith’s second effort took him four times as long because every time he finished a gear, he saw

deficiencies in the parts he’d made before. “Watchmaking is an obsessional thing,” he admits. “It really takes over your whole life.”

Daniels was not so much impressed with Smith’s second watch as with his obsessiveness, which the old man rewarded with a three-year-long apprenticeship. “I learned his approach to watchmaking, in which even the very smallest component should flow naturally into its matching component, and through the whole mechanism to the case and dial and hands,” says Smith. “It was also my first experience scaling down to wristwatches.” Together they made a series of 50 Millennium watches, featuring Daniels’s coaxial escapement, before Smith set up his own Isle of Man workshop down the block.

Smith has since dedicated his career to handcrafting wristwatches because, he says, “wristwatches have always been mass-produced, and never made to the same exacting standards as antique pocket watches. When I’ve restored English pocket watches by masters such as Thomas Mudge, they keep time as well as when they were made because of the handcraftsmanship. I want to make a wristwatch that will still be around in 500 years.” ▶

The Anniversary watch from Daniels London (above); Roger Smith’s Series 2 Open Dial (left) and No. 4 tourbillon (opposite)



To achieve that, Smith has had to transition from hand-finishing purchased escapements and wheel trains to making his own calibre. “The steel used by suppliers was of low quality, and the thinness of the wheels didn’t allow me to polish and bevel them as I would have liked,” he says. “With my Series 2, I’ve designed a watch with the strength and rigidity needed for a long lifespan.”

According to Smith, the production of his own calibre was made possible by CNC. “I’ve made a couple wristwatches completely by hand,” he says. “Handcrafting parts with tolerances of two or three microns is nearly impossible, so you accommodate your errors in the mating components. But the moment you want other people to work with you, or to make more than one watch a year, you need to standardize. CNC gives me the micronicity, and the confidence to spend two days polishing a minute wheel because we know it will fit.”

With his shop of six watchmakers, Smith is able to produce 10 Series 2 wristwatches a year. Their manual skill combined with CNC allows him to devote some of his time to special commissions such as a unique tourbillon with a moon phase currently under way, and to make a small run of 35th Anniversary wristwatches, based on a Daniels pocket watch, designed in collaboration with Daniels in his final years. Yet he’s still intimately involved with the Series 2 because “every single one is unique,” he says. “What’s exciting is that I can see the improvement with each one as our skills are refined. It’s obsessive, but George always said that your harshest critics will be your fellow watchmakers.”

One fellow watchmaker whom Smith admires, and who admires him in kind, is Kari Voutilainen. Training at the Finnish School of Watchmaking in Tapiola, Voutilainen did not encounter George Daniels directly, yet Daniels’s reputation was a crucial inspiration. “I looked at how Daniels made watches by himself, and I looked at how handwork was disappearing from the industry, and I realized that I also have to make things by myself,” Voutilainen says. “I’m a practical person and I get my satisfaction from doing things.”

Voutilainen found a mentor in Charles Meylan, a 70-year-old watchmaker he met while building complications for Michel Parmigiani in the 1990s. Meylan worked at the bench next to his, and taught him about “the ways watches were built in the past so that they should last forever,” Voutilainen says. “If something was worn out, you could replace it easily. Today it’s another philosophy, with the hairspring soldered and the main plate riveted.” The tourbillons and repeaters that Voutilainen made for Parmigiani reinforced his appreciation for traditional methods, since the watches were built using handcrafted antique movement blanks, known as *ébauches*.





Two views of Kari Voutilainen's Tourbillon (above) and his Vingt-8 model (opposite)

When Voutilainen opened his own shop in the Swiss village of Môtiers in 2002, he brought along Meylan's philosophy and adopted Parmigiani's method of modifying and hand-finishing classic *ébauches* by LeCoultre and Pignet. They served him well—allowing him to produce innovations such as a decimal repeater within several years of launching his brand—yet their great age made them increasingly scarce. Like Smith, he had to create his own calibre.

"With the Calibre 28, we are entirely independent," he says. "I have the flexibility to make technical improvements—like my double escape wheel, which needs less energy—and also we have control over quality." *Ébauches* are prepared on a CNC machine. "Without it, we couldn't really exist," he insists. "Making an *ébauche* by hand would take 50 times as long, and it wouldn't be better. We can concentrate on beveling and polishing, where working by hand can make a difference."

Voutilainen and his 13 watchmakers all share these tasks on the 50 watches they manufacture annually, and he has no plans to change the

arrangement when he begins also to produce his new large-date moon phase chronograph movement. "Working together, we keep each other motivated," he says. "We all share in the daily joy of making."

For Voutilainen, joy is perhaps the most important quality that can be conferred by handcraftsmanship. "A mechanical watch is full of emotions," he says. "There's none of that in a quartz watch. Once the battery runs flat, it's dead." ■

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