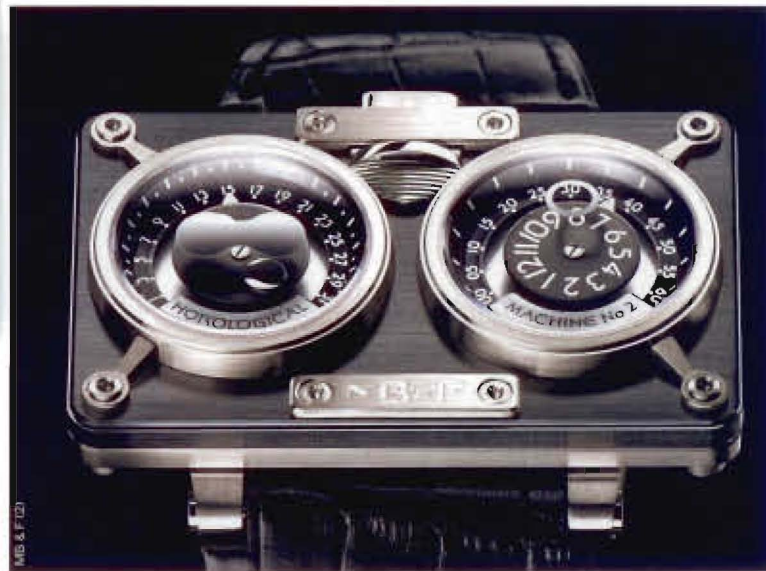


Pushing the limits: head of MB&F, Maximilian Büsser; his technical creation called "Horological Machine" (HM 3)



valuable. Whether it is useful at all is, though, an open question. Breguet's other watchmaking inventions have remained with us to this day, including the shock absorber and the idea of a self-winding mechanism.

Watches are considered a mature technology because they have been developed gradually over hundreds of years. Complications today are rarely new; instead, existing ones continue to be improved or miniaturized to fit in ever-smaller cases. Any new function tends to be for specific users, like Jaermann & Stubi's elegant Stroke Play series, which allows golfers to count their strokes and the time they are spending on the green.

When the industry talks about innovation, however, it is often referring to surprisingly small details, such as using ultralight materials to increase the power reserves. Jean-Claude Biver, who runs Hublot, has been experimenting with exotic metals or even carbon composites to create new colours. "And why read dials and the time in the same way all the time?" he asks. "It's mainly in the interpretation of the visual complications that there are developments to be made."

Biver is referring to the way our watches traditionally display the time. A group of independent watchmakers are pushing the limits of what is possible when aesthetics and engineering meet. They are testing complications like retrogrades, where the pointing hand jumps back to position one without having to go around the whole dial, or jumping hours (when the hour numbers "jump" into view).

The King Cobra CC1 from Urwerk, a company in Geneva started by Félix and Thomas Baumgartner with designer Martin Frei, presents hours and minutes horizontally in one dial, and the seconds and power reserve in a second dial. The numbers have been skeletonized, meaning that all unnecessary metal has been cut away, leaving the figures floating in space. The watch is built into a specially designed case that took a three-man team three months to produce.

Another innovator is Vianney Halter of La Manufacture Janvier in Sainte-Croix. He provokes the user by presenting time on separate dials. Richard Mille, a Swiss watchmaker based in Paris, has taken the concept of skeletonizing to extremes. His see-through watches give wearers a fascinating look at the movement — the complex mechanism inside.

In the RM 018, the wheels are made of precious stones protected by a delicate metal ring. For Mille, using this material presented its own problems: "The stones lost their color as the wheel's thickness was reduced," he says. "So getting the exact amount of opacity and transparency was difficult, because each type of stone has different demands and characteristics."

While exploring the world of watches, I was lucky to meet one of the most influential watchmakers in modern horology, Maximilian Büsser. He had worked for years at the jeweler's Harry Winston, where he developed the boldly modern Opus series with designers including Halter, Félix Baumgartner, and the then-unknown François-Paul Journe.

After leaving Harry Winston, he formed Maximilian Büsser & Friends (MB&F) in 2007. He has since produced three types of what he calls "horological machines." Büsser states: "Each creation has pushed us to invent a new technical achievement. The HM 1 is the only wristwatch movement to have a regulating system powered by two independent gear trains. The HM 2 has the only jumping hour that uses zero energy. And the HM 3 is the first movement to be engineered 'up-side down' with ceramic ball bearings transferring information from top to bottom."

Büsser is friendly, quick to praise other people's good ideas. But he's also critical of the watch industry: "It seems to me that high-end timepieces are evolving more and more into luxury or fashion accessories, and it makes me sad. I would like to see the human being, the exceptional creator, artisan, or watchmaker being put back in the center of the equation."

For me, discovering how much engineering could fit into such a small instrument was phenomenal. There are also remarkable external elements like the crown, used for winding the watch. But what really fascinated me were two special complications: the moon phases and the "equation of time." Next to the slightly inexact time used by humans, and displayed by most watches, this complication shows true solar time. Suddenly, I realized that owning a mechanical watch means having a little bit of the galaxy on your wrist. **CS**

 Listen to Maximilian Büsser on *Business Spotlight Audio*



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