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Expands
in the
Vallée de Joux*

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Most Complicated Wristwatch

A century-spanning exercise in miniaturization,
craftsmanship and human imagination



A phrase from Tom Petty's recent song *The Last DJ*, "... as we celebrate mediocrity ...," expresses well what I feel about the underlying sentiment in today's society. Everything is done to fulfill minimal requirements. Think of the service of your telephone company or your car mechanic. Smallest modifications are advertised as major breakthroughs—and one barely recognizes these tricks as our world becomes increasingly complicated, making such deceptions easy.

And our beloved universe of fine mechanical watches? This asylum for archaic ideas, skills and craftsmanship? My hope when I entered this world was that I would find a clean and sober space, filled with creativity and an upstanding work ethic. I realized soon enough that I was thinking like a neophyte.

While the manufacturers like to use words like "haute horlogerie,"



it is often—too often—marketing double talk. A new case here, a new dial color there. I always shake my head at a certain booth at the Basel Watch & Jewellery Show each year when I see crowds of people pressing their noses against a window where the latest exciting development of a well-known watch manufacturer is presented: a new dial variation. Very rarely a true innovation is shown, and then often

more market driven than originating from true horological goals (in the sense of a company's guiding idea). I started to think that this is how everything in the world may work.

Then I discovered the back roads beneath the autobahns: small companies and independent creators and artists, truly ingenious (and ingenuous), spirited, horological artists, who are eager to talk to you about their philosophy and ideas, and are happy to share their enthusiasm with others. I felt as if I had found heaven! This is the other side of the horological medalion, shining bright, but not blinding the viewers. And this is the side where many of the new mechanisms come from. These artisans are truly a rare breed.

Paul Gerber is one of this rare breed (see above photos). He is modest but immensely enthusiastic about his creations. A champion of miniaturization and working in a barely existent space, he created a complicated mechanism, despite the world telling him that it couldn't be done. He fit an alarm function into the famous Valjoux 7750 automatic chronograph movement without



Paul Gerber's
double rotor
automatic

Louis-Elysée Piquet
original movement



altering its height (a complication now produced by Fortis) and made the world's smallest wooden clock. He has also created his own line of wristwatches, introducing the first retrograde seconds in a wristwatch, and, later, a double rotor automatic module. Both are built upon the ETA/Peseux 7001 manual-wind movement.

Paul Gerber was the man who dared to make "the world's most complicated wristwatch" out of an already exceptional movement. This article invites you to follow the history of a fascinating microcosm of gears, levers and springs, describing what can be accomplished if the driving concepts are art, excellence and an uncompromising strategy.

A Retrospection by Lord Arran

Willi Ernst Sturzenegger was born in Switzerland in 1935. Over the years, he

has successfully dabbled in many different businesses, including restaurant ownership, sports advertising, fashion boutiques and construction. He became the Baron of English-Fircall in the 1980s, and the Earldom of Arran was bestowed on him in 1995, on his sixtieth birthday. He and his wife have two children.

The world's most complicated watch is in the possession of Lord Arran, who was involved in the project from the very beginning and knows more about the history of this watch than anyone else. Therefore, we have chosen to let him describe the history in his own words.

Note: This piece was previously published on ThePurists.com forum. Here it appears slightly modified, with kind permission.

LORD ARRAN Louis Elysée Piguet of Le Brassus, toward the end of the nineteenth century, produced three pocket watches containing minute repeater, grande et petite



Repeater work of the original movement

sonnerie, hours, minutes and seconds functions. The watches were extremely small, 32mm, with a thickness of 8mm.

AUTHORS' COMMENTS What do the above-mentioned features mean? They mean that 491 hand-finished parts are packed into 6.4 cubic centimeters in a movement beating at 18,000 bph. Without the help of computers or automated precision machining, this was and is—today maybe even more than ever—an historic feat. Please keep in mind

that the idea of serial production with interchangeable parts was yet a fantasy. Even watches with the “same” movement were not identical at all. The construction of the movement was the same, but the parts for each watch were optimized to fit the specific movement they were intended for. Because of this, the watches came along with spare parts.

LORD ARRAN Two of the three watches have gone astray and are missed since many years. The re-

maining one with the number zero became the property of Franck Muller, Geneva, in 1989. Franck Muller, then a practically unknown watchmaker except to some insiders, had looked for a sponsor to make the most complicated wristwatch based on the movement of this watch. Some manufacturers of watches were quite ready to sponsor the watch, but only if their brand name was chosen for the dial. This did not please Franck Muller who wanted to become known using his own name on the dial and the watch.



The flying tourbillon

He finally found a watch collector who had confidence in him and acquiesced to finance the watch. Franck Muller then produced a wristwatch encased in platinum, containing a Breguet-style dial. The watch came out with the original minute repeater, *grande et petite sonnerie* (silence/strike/*grande sonnerie* or *petite sonnerie* thanks to two levers). Furthermore, the watch contained the hours, minutes, seconds, a perpetual calendar with a retrograde month, weekday, date, 24-hour indicator, 4-year-cycle indicator, moon phases (the moon being upside down) and a thermometer for the internal temperature of the watch, as well as a retrograde monthly equation indication.

AUTHORS' COMMENTS With these additions, the watch was then unmatched. With all the previously mentioned complications, Franck Muller added some 160 parts to the original movement, for a total of 651 parts. Furthermore, this beautiful movement found its place in a platinum wristwatch case (made by Grandjean), under a beautiful dial, while—and keep this in mind when reading further on—still fitted around the original construction.

LORD ARRAN The watch was then the most complicated wristwatch, and Franck Muller proudly presented it at the Basel Fair 1992; however, more was to come.

As the collector and owner of the most complicated watch, I was now ready for much more. To my great fortune I knew Paul Gerber, a

watchmaker in Zurich, who, although he had yet to make a tourbillon, was confident that he was able to build the most coveted piece for the watch: a flying tourbillon.



Since I wanted to keep the original spring and size, the flying tourbillon was the only solution.

Paul Gerber did an excellent job building this tourbillon from scratch. It has meanwhile been used by other watch producers under li-

cense and also in Gerber's unique Pendulette 8-days clock, diameter 6.5cm, the only tabletop clock with a flying tourbillon.

It's worth mentioning that Paul Gerber has made some world exclusivities, such as a Miniature Wooden Movement Wall Clock in 1977. Then, in 1989 his smallest wooden wheels movement clock entered proudly into the *Guinness Book of Records*. He furthermore made a *Mysterieuse*, a clock with three main spring houses, a 14-day power reserve and a one-second remontoire that Fabergé took notice of and has been using the mechanisms in its well-known Fabergé Eggs since 1996. In 1997, he constructed an alarm wristwatch for Fortis with chronograph and alarm, the world's first. He then constructed his own Gerber wristwatch



with retrograde seconds at 6 o'clock and added a rotor twin automatic device for self-winding, another first.

AUTHORS' COMMENTS Without changing the height of the watch, Paul Gerber added 121 additional parts, all serving the smallest flying tourbillon in the world! (See photo, opposite page, top.) We are now at a total of 772 parts, and this is more than any grande complication wristwatch I know of. The dimensions of movement and case did not change with the newly implemented tourbillon. Gerber managed to keep the original balance and the spring, and he also managed to construct a most beautiful tourbillon mechanism that breathes pure watchmaking art.

LORD ARRAN Paul Gerber presented the watch at the Basel Fair 1995 with this unique and smallest flying tourbillon in the world; another superlative for this watch, which had become again the most complicated watch in the world. Paul Gerber received accolade upon accolade for this unique accomplishment, and it seemed at that time that it was the end of construction for this unique watch.

Not so for me; I wanted to have an even larger gap between the second most complicated wristwatch in the world and the first, and I dreamed of more complications. Paul Gerber was supportive and willing to continue to expand the complications.

Now he undertook to insert a split-seconds chronograph with a jumping minute counter. The

The completed movement



whole chronograph is laid out as a “flyback” chronograph, start-stop-zero, start-stop-continue with flyback, star-zero and all options accompanied by the split-seconds function with a second chronograph hand. Furthermore, he inserted a power-reserve indicator for both spring houses, indicating the power reserve for the movement and for the chimes.

AUTHORS’ COMMENTS Paul Gerber did the unthinkable: He inserted a split-seconds, flyback chronograph with jumping 60-minute counter, operated by a column wheel (chronograph) and a rim wheel (split-seconds mechanism) and a power-reserve indicator into a movement where one would simply find no room to spare. An additional 265 parts found their

way into the movement. Together with the seventy-nine parts of case, dial and hands, a total of 1,116 parts were assembled into a unique whole work of art. The number of parts more than doubled from the already phenomenally complicated original movement. Even Paul Gerber is unable to perform the impossible, however, so a new caseback was made that allows for the added thickness of the chronograph mechanism (a mere 2.6mm, for a total thickness of 13.4mm). But, during all these steps the diameter of the movement remained unchanged: 32mm, including the gongs, 28.3mm without them.

LORD ARRAN The watch received five more hands and three more pushers. The exhibition caseback of the watch could be held free to

the maximum, so that all the important parts (spring houses, repeater hammers, tourbillon, split-seconds installation, etc.) could still be seen. The ring of the back cover was engraved with the names of all the three artists: Louis-Elysée Piguet, LeBrassus; Franck Muller, Geneva; Paul Gerber, Zurich.

Paul Gerber really wasn’t in an enviable situation when he accepted this mission. Sure, much reputation was to be gained and, of course, to work on such an exceptional movement represents a watchmaker’s dream, but there were three challenges that really made his life much harder.

Note: The next installment (which will appear in the November issue) will shed some light into the way Paul Gerber dealt with these obstacles. ☺