Gerber's *Babies*

With an array of innovations for his own brand and others, independent watchmaker Paul Gerber has become a force in modern horology.

BY LUCIEN F. TRUEB

Although Geneva and the Jura Mountains are the hubs of Switzerland's watch industry, one of its most notable watchmakers lives and works in a suburb of Zurich, in a workshop on the ground floor of a single-family home. Paul Gerber was born in 1950 in Bern, where he studied watchmaking with his father, the owner of a watch-and-jewelry shop. As an apprentice, he broadened his horizons by attending courses at the trade school in Zurich, which would become his adopted hometown. It was in Zurich that he met the woman whom he would marry, and it was there that he began his watchmaking career. When an opportunity arose to take over a watch shop in the Albisrieden neighborhood from its former owner, who was preparing to retire, Gerber did not hesitate, approaching his parents for the loan that would allow him to buy it.

However, Gerber swiftly grew bored with the day-to-day affairs of the business: mundane tasks like changing batteries in quartz watches proved insufficiently challenging for him. As a sideline, he began

restoring antique watches and clocks, soon earning such a fine reputation that he received commissions from museums and auction houses. In his watch shop, Gerber had an ample stock of old watch movements and components that his predecessor had left behind. Gerber had always enjoyed working in small dimensions, so he embarked on his other hobby of constructing miniature wall clocks. The first of these was scarcely larger than a matchbox. It was so beautiful that his friends and acquaintances inundated him with requests for similar little clocks. Gerber ultimately crafted a 10-piece series of these.

Gerber built several wooden timepieces, including this single-handed one, in the late 1980s and 1990s.

GERBER HAS always been interested primarily in watch movements: he regards the cases, with their protective function, as little more than necessary evils. Though he is well aware of the importance of design, he doesn't want to be one of those watchmakers who focus on cases and dials while relying on outside movements to power their timepieces.

Experimenting with boxwood, an extremely hard material, Gerber built a tiny wall clock with wooden gears. Only afterward did he learn that he had made the world's smallest such clock, with a movement measuring a mere 22 mm in height. His ticking creation was duly included in the *Guinness Book of Records* in 1989. This clock is a miniature version of a Black Forest wall clock of the "cow's tail, eye-rolling" type with striking mechanism. A face is painted above the dial, and the eyes in the face shift tirelessly back and forth in one-minute intervals.

Gerber also used wood as the material for a nearly 75-mm-thick, one-handed *verge fusée* watch with only three wheels. He then collaborated with the goldsmith Gerd Dorschfeld in Italy to create an exclusive *pendule mystérieuse*. Its glass disks, which bear painted hands, are powered from their peripheries, so Gerber had to build an especially powerful movement. He also made a miniaturized English mantelpiece clock for a collector's dollhouse. For this timepiece, Gerber rebuilt a wristwatch's movement so that it would support an antique rearward winding and hand-setting system with a tiny key.

In the Guinness Book of Records: *the movement of the Cow's Tail Eye-Rolling Watch is a mere 22 mm thick.*

GERBER WAS among the first watchmakers to join the Académie Horlogère des Créateurs Indépendants (AHCI), which was founded by Svend Andersen and Vincent Calabrese in 1984. Encouraged by his colleagues, he soon became convinced that he could successfully ply his trade as an independent designer and maker of exclusive timepieces. He sold the watch shop in 1993 and has worked in his own home ever since, just as the traditional watchmakers in Switzerland's Jura region had done since the early 18th century. Gerber discovered his genuine calling in 1995, when he was commissioned to install a tourbillon in a very complicated movement with grande and petite sonnerie and minute repeater that Louis Elysée Piguet had originally built for a lady's pendant watch in 1892. Franck Muller in Geneva purchased the timepiece in 1992 and augmented it with a perpetual calendar, an equation-of-time display, a leap-year indicator, a moon-phase display, a 24-hour hand and a bimetallic thermometer. After perfecting the Piguet movement, Muller placed it inside a classically simple platinum case. Upon completion, it was the world's most complicated wristwatch, but in 1994 it

lost that distinction to Gérald Genta's Grande Sonnerie. But Lord Arran, the eccentric British writer and political figure who had purchased the Piguet-Muller watch, still wasn't satisfied: he wanted to add a tourbillon to the existing complications. One of his conditions for the rebuilding was the retention of the original balance — a slit bimetallic type that provides temperature compensation for the blued steel balance spring. Another was that the watch not become thicker due to the insertion of the tourbillon mechanism. Finally, Lord Arran wanted a flying tourbillon — a cantilevered tourbillon borne only on one end of its axis.

Gerber complied with each stipulation, but the watch was still not a true grand complication because it didn't include a chronograph mechanism. He soon rectified that oversight, adding a rattrapante chronograph function, as well as a center-mounted seconds hand and a jumping minute counter. Though these additional functions added another level to the movement, they were integrated as far as possible into the existing one, thus preserving Piguet's original design philosophy. Power-reserve displays for the going train and the strike train further complicated the multifunctional marvel. The project consumed a total of 11 years and wasn't completed until 2003. Afterward, Gerber also developed a flying tourbillon for Germany's Glashütte Original.

EVENTUALLY, Gerber made his first wristwatches under his own name — beautiful pieces with retrograde seconds hands, a concept that Gerber was among the first to use in an actual working watch. Many other watch manufacturers have used retrograde hands since then, for every conceivable type of display. As a seconds hand, it looks odd because it moves much more slowly than one on a conventional watch: rather than completing one full 360-degree arc each minute, Gerber's indicator sweeps through only 120 degrees each minute. When it reaches the 60th second, the hand returns to zero without a significant loss of time. The module that controls the retrograde seconds hand is a mere 0.4 millimeters thick and is installed atop a Peseux 7001 caliber. It also includes a ring around the base movement. Both the module and the base are adorned with Geneva waves and are plated with gold and rhodium. More recently, Gerber patented an automatic version of this caliber with twin rotors, which is now used by Perrelet, most recently in its new Turbine watches.

GERBER BEGAN RESTORING ANTIQUE WATCHES AND DOMESTIC CLOCKS AS A HOBBY. HE SOON RECEIVED COMMISSIONS FROM MUSEUMS AND AUCTION HOUSES.

Gerber has announced, but not yet introduced, a 7.6-mm-thick *manufacture* movement with a big date display and a special seconds hand: the wearer can switch between *seconde morte* (where the seconds-hand advances in single-second increments as on a quartz watch) and the nearly continuous motion that characterizes the seconds hand of a standard mechanical watch. The self-winding mechanism uses three synchronously running rotors made of gold or platinum, all of which are designed to rotate in the same plane without interfering with one another. Twin barrels amass enough power to keep the watch running for 100 hours. Gerber plans to use this caliber as a base movement, gradually adding complications over time.

The "bright side" of the sculptural moon in Gerber's Model 33 is studded with diamonds.

Also remarkable is Gerber's five-mm-tall, hand-wound, shaped movement, Caliber 33 (34 mm x 28 mm) for the tonneau-shaped Model 33 watch. Among Model 33's most distinctive features is a moon-phase indicator at 11 o'clock featuring a spherical moon made of lapis lazuli; its "bright" hemisphere is diamond pavé with 52 brilliant-cut diamonds. (By special request, Gerber can also make a version with engraved craters.) This construction isn't possible with a movement from any external source, because no manufacturer makes one that could be pierced with the six-mm-diameter hole needed to accommodate Gerber's moon. There's also a version without the moon-phase; the seconds subdial on both versions is located between 7 and 8 o'clock. Gerber inserted into this caliber his own escapement with three ruby pallets on the anchor and two concentric wreaths of teeth on the escape wheel. The escapement is conceived according to a principle put forth by George Daniels, inventor of Omega's co-axial escapement —that only adjacent gliding forces are active. Although this minimizes wear and tear, the system still needs occasional doses of lubrication. The two pallet jewels are made of ruby; the third, central jewel provides the impulse. Almost all parts of the movement and the accoutrements, including the milled guilloché dial and blued hands, are made in Gerber's atelier. The components for the escapement are also made there. Only the escape wheel comes from an external source, the Mimotec firm in Sion. Gerber makes the wheels from hard, milled rose gold. The ruby jewels are set in golden chatons.

GERBER ESPECIALLY enjoyed making entire movements and moving parts for the famous Fabergé eggs. The first Fabergé eggs had been created for the Russian czar Alexander III, but production ceased after 1917 and didn't resume until the late 1990s. Yearly editions have been released since then, and the regulating devices are made in Gerber's workshop. Gerber also builds for Fabergé five different music-playing objects, with moving figures but without clockworks, using very large and powerful springs.

Gerber added a tourbillon and a chronograph mechanism to the legendary Lord Arran watch, making it a true grand complication.

GERBER MAKES NEARLY ALL THE MOVEMENT COMPONENTS AND THEIR ACCOUTREMENTS — EVEN THE MILLED GUILLOCHE DIAL AND THE BLUED HANDS — IN HIS OWN ATELIER.

The series consists of 10 pieces, each using the smallest music box currently available. In 2000, Gerber again built for Fabergé two different egg-shaped timepieces. The more complicated of the two features jumping hours and minutes, constellations, a moon and music. The movement is ensconced in the upper part of the egg; the winding occurs in the lower half, which also provides a home for a rebuilt music box from the renowned manufacturer Reuge in Switzerland. The case — that is, the egg — was made in Pforzheim by Fabergé's licensee Victor Mayer, who also makes Fabergé jewelry.

The unconventional displays, which are turned upside down, caused some headaches for Gerber. In an ordinary watch, the slowest element (often the date disk) is placed on the lowest plane, with the progressively speedier ones proceeding upward, from hours to minutes to seconds. But this sequence is inverted in Fabergé's musical timepiece: the hours and minutes are lowest, followed by the very slowly rotating year-hoop, the stationary indicator for the sky and, finally, the rotating moon.

Beginning with an eight-day movement measuring 65 mm in diameter, Gerber developed a version with a flying tourbillon. This product, which debuted in Basel in 1999, was intended to fill a niche market in the genre of miniature table clocks. Among its most faithful customers is a Russian firm that makes luxury clocks; this company needed a skeletonized version of the construction with two barrels and an eight-day power reserve.

Gerber developed an escapement in which there are only gliding forces, reducing wear due to friction.

EVERYONE IS familiar with the stylish Movado Museum Watch designed by Nathan George Horwitt in 1947, with a single dot on an otherwise empty black dial. But the museum watch on which Paul Gerber collaborated isn't merely displayed in a museum; it's the product of a museum — namely, the Musée International d'Horlogerie (MIH) in La Chaux-de-Fonds. The museum's director, Ludwig Oechslin; industrial designer Christian Gafner; and Gerber, who served as design engineer, collaborated to create the timepiece, which was crafted in Gerber's atelier.

Oechslin had dreamed for many years of a perpetual calendar watch that could display the day of the week, month and date in a single window. Oechslin knows that numbers and letters are most legible when their height is equal to one-quarter of the dial's diameter. But not only are the aesthetics out of balance in this type of display; it's also impractical to produce it by mechanical means. A ratio of one to 15 was chosen as a compromise. Also, a genuine perpetual calendar would have been much too costly. Oechslin opted instead for an annual calendar that requires manual resetting only once each year (at the end of February) and can be built from just nine parts. The display uses the simplest conceivable solution: three concentrically arranged disks powered by a series of six additional parts. As a special added feature, this watch also offers an AM/PM display that alternately presents one or two red dots in a little window.

Gerber decided to use ETA's Valjoux 7750 automatic chronograph movement, primarily because it is so robust and powerful, but he significantly reduced its chronograph function, leaving only one push-piece at 2 o'clock to start the chrono-

Ludwig Oechslin conceived the MIH Watch; Gerber designed and built it.

Gerber was one of the first watchmakers to use retrograde displays on wristwatches (left). He also developed and patented the double rotor (below).

graph's large elapsed-seconds hand, stop it, and return it to its zero position. A window in the back of the watch offers a view of the 30-minute counter, which uses a rotating subdial and a motionless hand. The uncommonly sleek, simple case and the minimalist matte-black dial with white hour indices and finely calibrated minutes are the work of Gafner. Incidentally, this was the first watch that Gafner ever designed.

Gerber's Settimana model is also based on an idea contributed by Oechslin. Seven holes are drilled in a blued dial. A black dot advances to appear in the next hole each day, thus indicating the day of the week. The case is made of titanium, and a self-winding ETA 2824 caliber was chosen to animate the watch. The graphic calendar needs only the special dial and three additional parts: a switching finger, a wheel and a disk.

GERBER IS SO well known nowadays that he's in a position to accept only those commissions that he really enjoys. One such labor of love was the alarm module for the Valjoux 7750 in Fortis's Cosmonaut Chronograph. This caliber also served as the basis for another project: the Porsche Design Indicator Chronograph with titanium case, for which Gerber integrated two purely mechanical digital counters and three barrels. The counters at 3 o'clock can tally intervals of up to nine hours and 59 minutes. The entire watch is 15 mm tall.

The team in Gerber's design-engineering atelier currently consists of Gerber himself, his wife (who takes care of the bookkeeping the administrative tasks), and four young watchmakers. Gerber uses a three-dimensional CAD (computer-aided design) system to design watch movements.

Among the most important items in his workshop are two small, numerically controlled, milling machines and a processing center. All of these devices are accurate to tolerances of several 1,000ths of a millimeter. To provide space for the processing center, Gerber had to modify his garage, which wasn't much of a problem because he had never had any cars in it. When Gerber began making his own calibers, he assigned the number "1" to his first creation. The Fabergé movement was number 12. In 2008, he reached number 45. Connoisseurs of mechanical watches eagerly wait as the numbers get higher. ○