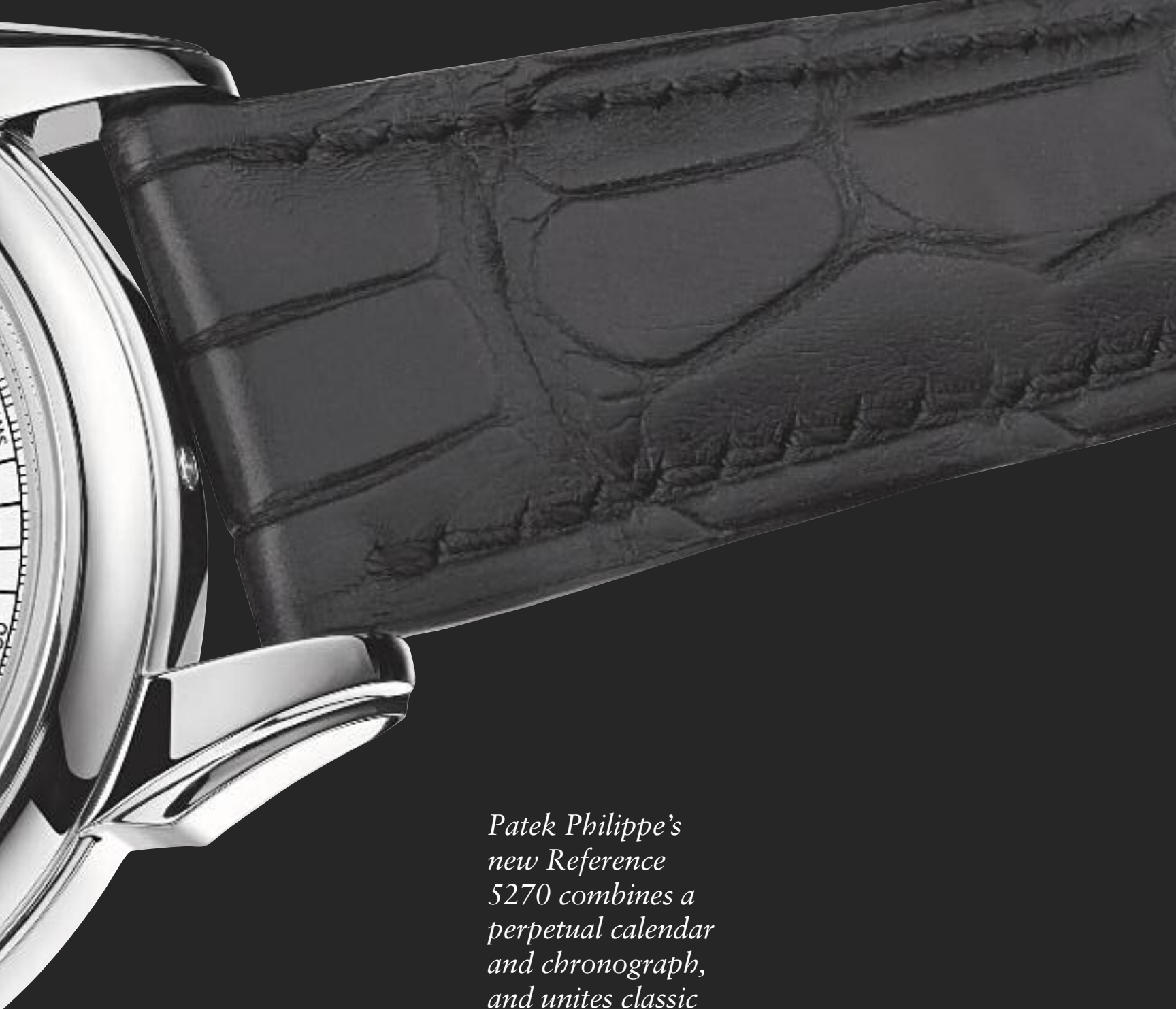




UPDATING THE G



*Patek Philippe's
new Reference
5270 combines a
perpetual calendar
and chronograph,
and unites classic
design with modern
technology.*

BY GIBBERT L. BRUNNER

CALENDAR

W

as it by chance or by design? In March, exactly 70 years after the launch of its famous Reference 1518, the world's first wristwatch chronograph with a perpetual calendar, Patek Philippe introduced Reference 5270 at the Baselworld watch fair. Unlike its renowned predecessor, the new caliber is made entirely in-house: both the base movement and the calendar mechanism were engineered and manufactured in Patek Philippe's own production facilities.

As is usual among timepieces with perpetual calendars, hand-wound Caliber CH 29-535 PS Q uses a so-called "sandwich-style" construction, wherein the calendar, or *quantième*, mechanism (the "Q" in the caliber's name; the "CH" stands for "chronograph" and "PS" for *petites secondes*, or small seconds) is mounted on the front or dial side. With this positioning, the simplest and most natural option would have been for Patek's designers to use the existing perpetual-calendar mechanism from References 3970 and 5970 in a new combination. However, this would not have worked because the subdials for small seconds and for elapsed minutes are positioned slightly below the "equator," the imaginary line that connects the "9," the "3" and the crown. Both A. Lange & Söhne, with its Datograph, and Rolex, with its Daytona Caliber 4130, had already accomplished this small, southward shift, motivated in part by the desire to discourage counterfeiters.

INSTEAD, PATEK DESIGNED a new calendar mechanism, just 1.65 millimeters thick. There are digital displays for the day and month in little windows below the "12," and a hand-type date indicator at the center of the moon-phase display. New features include two circular apertures cut into the dial on either side of the date display. The one on the left indicates whether the central hour hand is pointing to a daytime or a nighttime hour. This makes it easier to reset the calendar after the watch has not been worn for a long period, ensuring that the calendar's displays advance at midnight rather than at noon. The aperture on the right indicates the leap-year cycle and recalls Patek's Reference 3450, a calendar watch from the 1980s, of which only 244 pieces were produced.

The case is made of white gold and measures 41 mm in diameter.

ALTHOUGH THEY'RE ORDINARILY HIDDEN, all 182 components that make up the calendar mechanism have been beveled and polished, as required to earn the brand's own seal of quality. (In 2009, Patek Philippe stopped stamping its movements with the Geneva Seal, and instead began using its own quality hallmark, the Patek Philippe Seal. See *WatchTime*, June 2009, page 22.) As has been true for the past 70 years, the brain of the calendar movement is a so-called "month cam," a cleverly shaped component that requires one full year to complete a single rotation around its own axis. A lever mechanism "feels" around the cam's circumference for the various lengths of the months. A very special trick was needed for the month of February, which, of course, has 29 days in leap years. The month cam is notched at the point along its periphery that corresponds to February. Inserted into this notch is a little rectangle, which turns 90 degrees each year. Its raised side represents February in a leap year. The end of the main switch lever dips more deeply into the month cam in all months that have fewer than 31 days. This lever causes the switching mechanism to advance the hand on the date display by two increments at the end of 30-day months, by three increments at the end of February in a leap year, and by four increments at the end of February in an ordinary year. The watch has one corrector each for the day, the date and the month.

REFERENCE 5270 also boasts a state-of-the-art moon-phase display. In the sky, exactly 29.53059 days pass between one new moon and the next. This uneven number confronted the watchmakers of yesteryear with an insoluble conundrum, so they simply rounded off the interval to 29½ days, cut 59 teeth into the disk of the moon-phase display, and allowed it to advance (like a day display) by one increment each day, which resulted in a



Sandwich-style construction: the perpetual calendar mechanism is positioned beneath the dial (above); the chronograph mechanism is on the movement side (left).

SPECS

PATEK PHILIPPE REFERENCE 5270

Manufacturer: Patek Philippe, Chemin du Pont-du-Centenaire 141, CH-1228, Plan-les-Ouates, Switzerland

Reference Number: 5270

Functions: Hours, minutes, small seconds, column-wheel chronograph with elapsed-seconds hand and jumping counter for 30 elapsed minutes; perpetual calendar with day, month, leap-year cycle and day/night display in windows, hand-type date display, precise moon-phase display

Movement: Caliber CH 29-535 PS Q, manual-wind; 456 individual components; 33 jewels; 28,800 vph; diameter = 32 mm; height = 7 mm; Gyromax balance; Breguet hairspring; 65-hour power reserve; Patek Philippe seal of quality

Case: 18k white gold, sapphire crystal, screwed caseback with sapphire viewing window, water-resistant to 30 meters, delivered with corrector stylus made of ebony and 18k white gold

Strap and clasp: Matte-black, hand-sewn alligator-skin with folding clasp made of 18k white gold

Dimensions: Diameter = 41 mm, height = 12.4 mm

Price: \$155,700

PATEK PHILIPPE DESIGNED A NEW
CALENDAR MECHANISM TO PAIR
WITH THE CHRONOGRAPH
MOVEMENT IT LAUNCHED IN 2009.

cumulative error of approximately eight hours per year. The gear-train construction in Reference 5270 is much more accurate. It deviates from astronomical reality by a mere 11 minutes and 47 seconds each year, so 122 years and 45 days will pass before it errs by one full day. A little button, inset into the rim of the case, can be pressed to readjust the display. Patek Philippe includes a corrector stylus, with an elegant ebony shaft and a white-gold tip, with each watch.

UNLIKE THE FINELY FINISHED, lavishly decorated components of the calendar mechanism, which are concealed beneath the dial, the movement's chronograph is clearly visible through the case's transparent back. Caliber CH 29-535 PS, which came out in 2009, required five years of developmental work. The "29" in its name indicates the caliber's diameter in millimeters and the "535" refers to its height of 5.35 mm. Engineered by Patek Philippe and protected by six patents, this complex, 274-part movement is a synthesis of tradition and innovation, although it seems quite conventional at first glance. Horizontal gear coupling offers an unobstructed view of the chronograph's operating sequences. The teeth on the coupling wheels roll off one another, so their inter-

70 Years of Patek Philippe Perpetual Calendar Chronographs

Patek Philippe's history of making perpetual-calendar timepieces began in 1898, when it crafted a ladies' pocketwatch with this complication. For technical reasons, its calendar mechanism was mounted beneath the dial and the calendar information was displayed on jumping indicators. Unfortunately, this horological showpiece, numbered 97.975, failed to find a buyer. The original pocketwatch was converted into a wristwatch in 1925, but was not sold until 1927. Only a very few models with this complication were made during the 1930s. Their ébauches were made in the Vallée de Joux by Victorin Piguet, now part of Patek Philippe. In addition to perpetual calendars with conventional date displays (on which the date is shown by a hand that moves in a circle and makes a differently sized jump at the end of each month), there were also some perpetual calendars with retrograde date indicators. Patek ushered in an era of small-series manufacturing with the legendary Reference 1518, a chronograph with perpetual calendar, in 1941. A total of 281 pieces were made between that year and 1954. Like other luxury brands, Patek Philippe ordered the chronograph ébauche from Valjoux, the foremost chronograph specialist. Chronographs with perpetual calendars have

been fixtures in Patek Philippe's collection since 1941. Reference 2499 is much more boldly styled and contains the same movement: 349 pieces of this model were manufactured from its debut in 1951 until 1985. Particularly noteworthy is a movement designated 863.247: Patek Philippe produced it in 1944, fitted it inside the case of Reference 1527 (which had debuted in 1942) and gave it a special dial. This unusual calendar chronograph was sold on August 22, 1946 and resold for a record price of 6,259,000 Swiss francs on May 12, 2010.

Patek ceased using the Valjoux ébauches in 1985. One year later, the company celebrated the premiere of Reference 3970 in Basel. Based on the 12-ligne chronograph ébauche 2320 from Nouvelle Lémania, it had a radically modified form, including a newly developed calendar mechanism with leap-year and 24-hour indicators, plus hand-type displays for the day and month. Reference 5970, which debuted in 2004, offers the same movement but caters to the modern demand for larger cases. Patek Philippe will not divulge how many pieces of References 3970 and 5970 have been manufactured, but one can safely assume that their combined total exceeds that of References 1518 and 2499.

The lugs and pushers are shaped like those Patek used in the '40s and '50s.



THE MOON-PHASE DEVIATES FROM
ASTRONOMICAL REALITY BY A MERE
11 MINUTES AND 45 SECONDS PER YEAR.



The day-night and leap-year displays flank the date subdial at 6 o'clock.

meshing consumes little energy and ensures that the chronograph's seconds hand starts without jumping and then progresses smoothly and with almost no trembling. The elapsed-minutes counter is also a new design. Engineer Pierre Maurice Rochat and his team invented an intricate system that advances the minute-counter hand at 60-second intervals, creating a so-called "instantaneous" minute counter. A cam on the shaft of the chronograph seconds hand, a switch lever and a coiled spring collaborate to produce the fastest possible jumps, which occur exactly at the 60-second point. Caliber CH 29-535 PS also boasts a forced control for the blocking lever to ensure that the chronograph hand stays precisely where it was right before it was stopped. In another innovation, Patek devised a new way to alter the depth of penetration between the coupling wheels: using the column-wheel cap to finely adjust the angular range through which the coupling lever is free to move. An eccentric screw in the plate usually serves this purpose. This is the first time in the history of chronographs that a column-wheel cap has been given an operational role.

Finally, the chronograph's return-to-zero function also incorporates some new ideas. First, both ends of the two-part lever have springs that press them against their respective return-to-zero heart-pieces so that the lever is always correctly aligned. Second, the snail cam for the minutes counter has an indentation that eliminates quivering of the chronograph seconds hand when it returns to zero. This quivering can be dangerous: photographs taken with a high-speed camera show that upon being returned to zero, the tip of a chronograph seconds hand flicks like the backlash of a whip, bending through as much as 60 degrees of arc. In a worst-case scenario, the hand can be permanently bent or even snap. But with the CH 29-535 PS, when the return-to-zero button is pushed, the cleverly designed tip of the minute-counter lever dips into the indentation, which corresponds to 60 degrees of arc, and prevents this from happening.

From a technical point of view, Reference 5270 differs more drastically from its role model, Reference 1518, than do all other hand-wound chronographs with perpetual calendars that Patek Philippe has produced in the past seven decades. Visually, on the other hand, the watch combines many stylistic touches from past models, including the 1518, the 2499 and the 3970, along with lugs that closely resemble those on chronograph Reference 1579 from 1943. With this updated model, the brand continues to appeal to traditionalists while still attracting aficionados interested in technological innovation. ○

Patek's Chronograph Movements: A Brief History

Although Patek Philippe did not make its first chronograph wristwatch until 1923 — too late to be counted among that genre's pioneers — watch aficionados were nonetheless thoroughly impressed by Patek's early models, which contained finely finished ébauches supplied by Victorin Piguet and LeCoultre. All were produced in small numbers. Specifically designated calibers and reference numbers had yet to be introduced. Some of these watches achieved visual variety on their dials by changing the position of the running seconds hand and of the elapsed-minute counter.

If the axis of the seconds hand, the center of the dial and the axis of the elapsed-minutes hand formed a right angle, the caliber was a *savonnette* (or "hunter"); if these same three points formed a horizontal line, the watch used a *Lépine* caliber.

The business's philosophy underwent a fundamental change when the Stern family became the brand's owners in the mid-1930s. Thanks to the development of hand-wound Caliber 9^{'''}-90 and Caliber 12^{'''}-120, Patek Philippe became a full-fledged *manufacture*. But connoisseurs would have to wait about 70 years before the brand produced chronograph movements of its own. The introduction of reference numbers brought order to the watch collection. Reference 130 was born on September 8, 1934. Its 34-mm-diameter gold case contained an ébauche from the Vallée de Joux: 13-ligne Caliber 23VZ from Valjoux. Noblesse oblige, so Patek Philippe thoroughly reworked and upgraded this device with the best possible *finissage*. Particularly noteworthy are the redesign of the clutch rocker and the positioning of its pivot point concentrically with the arbor of the fourth wheel. This caliber remained an indispensable member of the brand's caliber assortment for the next 52 years. It was also used in References 1518 and 2499 with perpetual calendar. Production of this classic caliber ceased in 1974. Valjoux had enough of these calibers in stock to satisfy demand until 1982 and Patek Philippe exhausted its reserves three years later, but a suitable successor was available in the Vallée de Joux, where the ébauche maker Nouvelle Lémania offered a high-quality and classic hand-wound item: Caliber 2320, with a column-wheel and horizontal wheel coupling. Patek Philippe made extensive changes to the caliber, altering more than 60 percent of it. The modifications included reshaping and positioning the clutch rocker. The result, Caliber CH 27-70 Q, has 208 components. It is contained in References 3970 and 5970 with perpetual calendar.

Patek Philippe's historical References 1518 (below, left) and 2499 (right) also combined a chronograph and a perpetual calendar.



Patek Philippe used chronograph Caliber 23 VZ from Valjoux as the base movement inside Reference 130 (right), first manufactured in 1934.