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Les Cabinotiers
The Berkley Grand Complication

The world's most complicated watch
The first Chinese perpetual calendar
A masterpiece of innovation with 63 complications

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- A world first in the form of a Chinese perpetual calendar programmed until 2200.
- A world record, with a total of 63 horological complications integrated into a timepiece that required 11 years of research and development.
- A human adventure shared by three watchmakers and the commissioner, the same people behind the Reference 57260 watch presented in 2015.

Vacheron Constantin presents the world's most complicated watch. Comprising 63 horological complications and 2,877 components, it surpasses the record already held by the Maison with Reference 57260. This world-first timepiece is distinguished by the fact that it features a genuine Chinese perpetual calendar. Given the particularities of this lunisolar calendar characterised by a complex and irregular cycle, the mechanical programming of in-house Calibre 3752 through to 2200 is a feat of horological genius. Stemming from 11 years of development, including a year entirely devoted to its assembly, Les Cabinotiers - The Berkley Grand Complication is a milestone in contemporary watchmaking history. Similar in design to the Reference 57260 presented in 2015, Les Cabinotiers - The Berkley Grand Complication was born from the will of the same commissioner who has chosen to give it his name.

I.- VACHERON CONSTANTIN AT THE PINNACLE OF THE ART OF WATCHMAKING

Creating the most complicated watch ever made is an art that Vacheron Constantin has cultivated since its origins in 1755. More than two and a half centuries of history have forged the character of a Maison whose underlying motivation is to constantly push the limits of feasibility. Les Cabinotiers - The Berkley Grand Complication is yet another demonstration of this approach. This timepiece with its 63 complications represents a technical feat that is further enhanced by its restrained, elegant aesthetic and impeccable level of finishing. It took the three watchmakers 11 years of development and a wealth of ingenuity to bring this horological marvel to fruition. The

movement assembly alone was spread over 12 months, notably including a trial assembly – before the decorative finishing of the components – to ensure it ran smoothly.

- An unprecedented total of 63 horological complications

Double-sided Calibre 3752 comprises 2,877 components, 245 jewels, 31 hands and 9 discs. Complications covering the entire horological spectrum have been integrated into this calibre in their most accomplished form. The chronograph features a split-seconds function; the phases of the moons are extremely accurate, requiring no correction in 1,027 years; the Gregorian perpetual calendar is presented in accordance with the ISO 8601 standard; the small seconds are the retrograde kind, with compensation for the time required for the hand to jump back; the tourbillon has three rotational axes; the sky chart rotates according to the sidereal day (23h, 56m, 4.09s); the day/night indicator of the second time zone is engraved with an azimuthal polar projection providing an original geographical perspective.

The 63 complications in this timepiece encompass the following categories:

- ❖ Time measurement and regulation: 9 complications
- ❖ Gregorian perpetual calendar: 7 complications
- ❖ Chinese perpetual calendar: 11 complications
- ❖ Chinese agricultural perpetual calendar: 2 complications
- ❖ Astronomical indications: 9 complications
- ❖ Split-seconds chronograph: 4 complications
- ❖ Alarm functions: 7 complications
- ❖ Grande Sonnerie: 8 complications
- ❖ Additional functions: 6 complications

II.- THE FIRST CHINESE PERPETUAL CALENDAR

With the alternation of day and night, the cycle of the seasons and that of the Sun and Moon, humankind became aware of the concept of time at a very early stage. It was however not until the advent of writing – in the fourth millennium BCE in the West and the second millennium BCE in China – that time became predictive. From then on, calculations based on astronomical observations could be used to develop a calendar. The ancients developed several calendar systems, based on the lunar months (Hegirian calendar), the solar year (Gregorian calendar) or a combination of the two, meaning lunisolar calendars incorporating the adjustments required to make them coincide. The Chinese calendar – like those of the Greeks, Hebrews and Celts – falls into the latter category.

- A complex and irregular system

Chinese calendar months are lunar and begin on the day of the new moon calculated on the 120th meridian east (UTC +8h) passing through the Shandong peninsula and the city of Hangzhou. In order to respect the average length of a lunation (29.53 days), they irregularly comprise either 29 or 30 days. In total, however, the 12 lunar months are 11 days shorter than a solar year (365.2422 days). For this reason, the Chinese calendar incorporates a 13th intercalary or embolismic month every two to three years, corresponding to seven times over the Metonic cycle. The latter – named after the Greek astronomer Meton (5th century BCE) – refers to the 235 lunations occurring over 19 tropical years, at the end of which the two systems (lunar and solar) are perfectly synchronised (i.e. 6,940 days). Depending on the lunations, the common Chinese year can therefore have 353, 354 or 355 days and the embolismic year 383, 384 or 385 days. The other factor to be considered is the Chinese New Year of which the date marks the start of the lunar year yet fluctuates between 21 January and 21 February.

The solar year in the Chinese calendar is a true tropical year, calculated on the same meridian (120th meridian east) between two winter solstices. It is divided into 24 periods of 15° each on the Sun's path along the ecliptic (the Sun's apparent annual path as seen from Earth). Each period, alternately known as *jie* (node) and *qi* (vital breath), lasts around 15 days, giving an average duration that fairly regularly corresponds to the Gregorian calendar, i.e. a year of 365 or 366 days.

Another feature of the Chinese calendar is that the units of time are numbered based on the association of two series of signs – 10 celestial stems and 12 earthly branches – yielding a possible total of 60 different combinations. This so-called sexagesimal cycle is most often used to mark the passing of years, but can also be applied to months, days or hours. The stems are also associated with the five elements (wood, fire, earth, metal, water) and with a polarity (yin, the feminine principle; or yang, the masculine principle). The branches are also represented by the 12 signs of the Chinese zodiac in the following sequence: rat, ox, tiger, rabbit, dragon, snake, horse, goat, monkey, rooster, dog and pig. At each stage of the calendar, the number of the stem and the number of the branch is incremented by one to create a cycle of 60 combinations corresponding to the lowest common multiple of 10 stems and 12 branches or animals of the zodiac.

Lunisolar calendars play on complementarity. The system requires knowledge of the solar calendar to establish the dates of the leap moons and the beginning of the lunar years in order to achieve perfect synchronisation. Such was the aim of the Chinese, who ceaselessly improved their calendar so that it would reflect the reality of astronomical phenomena as closely as possible. The resulting accuracy is however a complexifying factor when it comes to modelling a system that is essentially characterised by its irregularity. While it is possible to program the calculation of the

Chinese calendar since 1645 using analytical theories, as scientists have done, obtaining a concrete mechanical application represented an unfathomable challenge.

- A world first

The main innovation of Les Cabinotiers - The Berkley Grand Complication is its traditional Chinese calendar. It is the first watch to present it in the form of a perpetual calendar, with all the calculations, patience, ingenuity and understanding of Chinese culture that this implies.

In concrete terms, the three watchmakers first had to model the calendar in algorithms. They then worked on transcribing them into a mechanism programmed until the year 2200 and capable of following the irregularities of a calendar whose years and lunar months have different durations on an irregular sequential basis, with a fluctuating first day of the year. To achieve this, they devised three mechanical 'brains' capable of controlling the cams and gears on one of the movement's two additional mechanisms on the front side. Broadly speaking, each of them "drives" one of the calendar's components: namely the lunar cycle, the solar cycle and the Metonic cycle. This latter cycle of 19 years – known as the golden numbers – can be read off on the 3 o'clock counter.

In addition to this feat of a watch programmed until the year 2200, Vacheron Constantin's watchmakers went so far as to offer a disc-type display of the exact – yet by definition variable – date of the Chinese New Year. This in itself represents another major accomplishment, as this key date in the nation's social life fluctuates continuously between January 21 and February 21.

The front of the watch is essentially devoted to the various indications of the traditional Chinese calendar. To find one's bearings, one must first determine whether the current year is normal or embolismic (aperture at 11 o'clock) and whether the month is a short or long lunar month (aperture at 12 o'clock on the fixed New Year disc). This perpetual calendar bearing indications in Chinese characters includes a pointer-type date display on a 6 o'clock counter, along with aperture-type indications of the day at 8 o'clock and the month at 4 o'clock.

Les Cabinotiers - The Berkley Grand Complication also indicates an unprecedented amount of information linked to the sexagesimal cycle, the keystone of the Chinese calendar and indeed of the entire Chinese cosmological model. This feat was rendered all the more impressive by the fact that the information shown relates to different time scales: the hour, the day and the year. Vacheron Constantin's watchmakers have integrated a jumping display of the 10 celestial stems, with their yin-yang polarity and associated elements (9 o'clock counter) for the day. The 3 o'clock counter shows the 12 earthly branches associated with the double hours, each day being

subdivided into 12 two-hour segments, starting at 11 o'clock. The display here is continuous, over a 24-hour period. Finally, the silhouette of the Chinese zodiac animal for the current year appears in an aperture positioned below the moon phases. The combination of the animal and the celestial stem suggested on the New Year's disc gives the position within the sexagesimal cycle.

As an essential complement to this Chinese perpetual calendar, the precision phases and age of the moon appear on the 12 o'clock counter, with no need for corrections over a full 1,027 years.

The final feature of this Chinese perpetual calendar is the caseback-side display – by a central hand – of the agricultural year's 24 solar periods, along with the month lengths, seasons, solstices and equinoxes.

III.- A HIGH-PRECISION ASTRONOMICAL AND CHIMING WATCH

Vacheron Constantin's watchmakers did their utmost to incorporate the full range of horology's noblest complications into this watch, be they in the realm of astronomical and chiming functions, as well as useful complications in terms of chronometry, alarms and time zones – all governed by a determination to achieve very high precision.

- Astronomical indications and Gregorian calendars

An astronomical watch par excellence, Les Cabinotiers - The Berkley Grand Complication also explores the vagaries of the Gregorian calendar. The latter is designed on a perpetual basis, i.e. until 2100, a non-leap secular year following the reform of the Julian calendar called for by the Council of Trent in 1582. Implemented by Pope Gregory XIII, this reform consisted of deleting 10 days to re-establish coincidence with the seasons. To avoid any further calendar drift, the decision was taken to eliminate three leap years in four centuries. Only those secular years whose year is divisible by 400 would remain leap years.

The Gregorian perpetual calendar is displayed on the watch's second face, built on one of the movement's two additional caseback-side mechanisms. The display comprises a retrograde date at 12 o'clock, complemented by the day of the week (9 o'clock counter), the month (3 o'clock counter) and the leap-year cycle (1 o'clock aperture). The Gregorian calendar has also served as the basis for another type of indication: since 1988, to avoid any confusion in international communications, the ISO 8601 standard has formalised numerical date formats for years (4 digits), months (1 to 12), weeks (1 to 52) and days (1 to 31 or 1 to 7). Les Cabinotiers - The Berkley Grand Complication thus incorporates the ISO 8601 calendar-week numeral pointed to by a hand (3 o'clock counter) with the day numeral in an aperture positioned above it.

The watch's astronomical references are not confined to calendars. Also visible on the back – fitted on this side of the movement's second additional mechanism – is a sky chart with the constellations appearing in real time as observed from Shanghai. For the sake of accuracy, this celestial disc makes one complete rotation in one sidereal day. Using a fixed star in the sky as a reference point, the time taken for the Earth to complete a full 360° rotation (sidereal day) is exactly 23 hours 56 minutes and 4 seconds. As the Earth both spins on its axis and revolves around the Sun, it takes around four minutes less than an average calendar day to return to its point of departure in relation to the given star. This sidereal time – that can be read counter-clockwise on the 24-hour circle with a scale bearing 15-minute graduations – is essential for correctly adjusting the sky chart. The map is marked with an off-centre ellipse to highlight the exact position of the constellations in the Northern Hemisphere at the time the watch is checked.

The equation of time completes the watch's astronomical indications. Given that the Earth's path around the Sun is not circular but elliptical and that the Earth's axis is inclined at a 24° angle to the plane of its orbit, the time between two solar zenith passages is not the same throughout the year. This difference between the (true) solar day and the (mean) 24-hour civil day ranges from -16 to +14 minutes depending on the time of year and is equivalent to zero just four times a year

at the solstices and equinoxes. This information known as the equation of time – or time correction in astronomical parlance – is obtained by means of a cam that controls the display of this time differential. As well as marking the passage of the seasons, this revolution of the Earth around the Sun also determines the length of the day and night phases. Two counters (5 o'clock and 7 o'clock) display sunrise and sunset times, along with the length of day and night, consistently calculated with Shanghai as the geographical location.

- Grande Sonnerie and alarms

Grande Sonnerie timepieces are in a class of their own among musical timepieces because of their extreme complexity. Mastery of these watches which strike the hour and quarters in passing – with the hour repeating before each quarter in Grande Sonnerie mode and without repeating in Petite Sonnerie mode – has quite logically not become widespread given the high demands placed on the design of the strikework integrated into the movement. These range from the mechanism's safety features to the musicality of the sound sequences, not to mention energy management given the 912 hammer strikes in 24 hours. The world of chiming watches has been part of Vacheron Constantin's expertise since the very beginning, as evidenced by an order dating back to 1806 and referenced in the Maison's archives.

The Vacheron Constantin watchmakers were keen to equip Calibre 3752 with a Grande Sonnerie mechanism featuring a Westminster carillon. This chimes the tune sounded by the bells of Big Ben – on London's Tower of Parliament – in four bars of four notes played at different frequencies, punctuated by a fifth note for the hours. A total of five hammers and five gongs compose this chime, which can be heard at any time by activating the minute repeater lever positioned on the case middle at 6 o'clock.

In "Striking" mode (as shown by a pointer-type selector at 10 o'clock on the front), the watch is automatically activated upon each passing of a new quarter-hour, like a clock. In "Night" mode, the alarm is deactivated between 10pm and 8am, according to a time slot chosen by the customer, to save energy as well as to ensure peace and quiet at night. The last mode dubbed "Silence" suspends the strikework completely. A second selector coaxial with the first enables one to switch from Grande Sonnerie to Petite Sonnerie mode, as desired. This strikework has its own barrel with a pointer-type power-reserve display at 9 o'clock.

The watch's striking mechanism is complemented by an alarm. Activated by a dedicated slide on the case middle at 1 o'clock, it is set by the crown, with the alarm time displayed by an hours hand coaxial with the one showing the watch time (at 12 o'clock on the front). It has its own energy reserve with a dedicated barrel that is set by a movable crown housed in the case middle at 5

o'clock, another of the watch's technical subtleties. The alarm torque is displayed by a hand on the same counter as the mode indicator (1 o'clock on the front). In "Normal" position, the alarm sounds progressively on a dedicated gong with a different tone struck by a sixth hammer. In "Carillon" position, the alarm activates the Big Ben chime and sounds in Grande or Petite Sonnerie mode. For mechanical safety reasons, both the Grande Sonnerie mechanism and the alarm mechanism have a system for blocking the striking when the power reserve of their respective barrels is exhausted.

- Triple-axis tourbillon regulator

This addition of astronomical and chiming complications should not detract from the watch's primary function, which is to display the time – or better still, to display the time in several time zones and even to measure short times. Les Cabinotiers - The Berkley Grand Complication fulfils all these functions with chronometric precision. The watchmakers devoted particular attention to the escapement and regulation system that controls the sequencing of the energy chain and, consequently, the precision of the gear train. As a result, they developed a triple-axis armillary tourbillon regulator, operating at a frequency of 2.5 Hz (18,000 vibrations per hour) and fitted with a spherical balance-spring. The name "armillary" refers to the work of Antide Janvier (1751-1835), astronomer and watchmaker by appointment to King Louis XVI, one of whose greatest masterpieces was the creation of a moving sphere featuring an armillary planetary gear system.

With this type of construction, the escapement housed at the heart of the tourbillon takes up every different position in order to cancel out the effects of Earth's gravity on the movement's isochronism, which makes perfect sense for a pocket watch worn in a fixed position. This is further enhanced by the presence of a spherical balance-spring, whose performance is superior to that of flat balance-springs. The result is an extraordinary mechanical ballet visible on the back of the watch, with a tourbillon carriage of which the constantly rotating elements form Vacheron Constantin's Maltese cross emblem every 15 seconds. The result is also a high degree of precision in the operation of the complications, a feat in itself given the complexity of Calibre 3752.

- Precision display and split-seconds chronograph

The time display is of the regulator type, with day/night indicators (1 o'clock on the front) and a 60-hour power reserve (3 o'clock). Historically, the precision clocks used to set watches in watchmaking workshops offered this type of dissociative display. In this model, the hours hand (12 o'clock counter on the front) is separate from the central minutes hand and the seconds hand (6 o'clock counter). To enhance this display, the watchmakers at Les Cabinotiers devised a retrograde seconds hand. Moreover, since this watch is clearly subject to the requirements of high

precision, they have equipped this retrograde mechanism with a sophisticated technical solution consisting of adding two cams to the mechanism in order to compensate for the time it takes for the seconds hand to return to the "0" position.

The watch's chronograph, accurate to the nearest fifth of a second thanks to the movement's 2.5 Hz cadence, features a split-seconds function. This enables intermediate (split) times to be measured by stopping the second central sweep-seconds hand, which "catches up" (hence the French name *rattrapante*) with the first one – and thus with the elapsed time – once it is restarted. To differentiate it from the Reference 57250 watch, which has a chronograph with two retrograde seconds hands, the watchmakers have opted for a more 'classic' configuration, with both seconds hands moving in the same rotational direction. Integrated into the movement's second additional mechanism on the front, this chronograph is controlled by three column-wheels and a horizontal clutch via the pushpiece housed in the crown. The pusher embedded in the case middle at 11 o'clock is used to restart the split-seconds hand. The chronograph hours and minutes are indicated by hands on their respective counters at 3 o'clock (hours) and 9 o'clock (minutes) with a silver-toned colour code. On the front, the time indications appear in blue, while the Chinese calendar displays and the various chime functions are distinguished by golden tones.

- Second time zone and world time

Astronomical yet also travel-friendly, the watch displays world time, a function visible on the back. A 10 o'clock aperture enables the wearer to select one of the 24 cities corresponding to the 24 time zones into which the Earth has been divided since the 1884 International Meridian Conference held in Washington. The city symbol appears with the time differential in relation to the Greenwich meridian, such as N.Y. GMT -5. Below, the 9 o'clock counter shows the hours and minutes over a 12-hour period in a second time zone, with the corresponding day/night indication at 11 o'clock. On closer inspection, the rotating disc used to distinguish between day and night is engraved with a polar azimuthal projection of the Northern Hemisphere. This makes it possible to see the Earth's global sunshine duration from a geographical point located in this second time zone.

- Finishing and hand decorations

While Les Cabinotiers - The Berkley Grand Complication required years of development due to its sheer complexity, one must not overlook within this cycle the time devoted to decorating and finishing the 2,877 components, including the invisible convolutions of the mechanism, not to mention the case.

This perfectly elegant 18K white gold case features polished bezels on both sides. The winding crown is complemented by an aperture on the case middle, protected by a sapphire crystal, providing a view of the crown's position when winding or setting the timepiece. On the front, the dial is composed of four subdials featuring different types of finish: opaline silver-toned on the main dial and sunburst on the auxiliary dials. The dial on the back of the watch features the same opaline hue.

Equal care was devoted to the movement, whose golden colour on a frosted base adorned with a Côtes de Genève motif on the reverse is a challenge in itself, as the slightest mishandling of the decorated components leaves indelible marks. The watchmakers in charge of assembling the timepiece – and who also did most of the decoration – therefore had to be extremely meticulous. The result is a watch whose complexity contributes to its overall elegance and harmony.

IV. A HUMAN ADVENTURE

Comprising 63 horological complications, Les Cabinotiers - The Berkley Grand Complication – a watch bearing the Hallmark of Geneva – surpasses the record already held by the Maison with Reference 57260. Between these two timepieces lies an extraordinary human adventure between a collector passionate about the great achievements of traditional watchmaking and three watchmakers from Vacheron Constantin's Les Cabinotiers department.

- The patience and trust of a passionate enthusiast

The Reference 57260 and Les Cabinotiers - The Berkley Grand Complication watches first took shape in the mind of the same commissioner, an American businessman and philanthropist who owns a prestigious collection of pocket watches that he has patiently assembled over the last 50 years. A discerning connoisseur, he loves challenges and the first one he set for the Maison was that of the most complicated watch ever made, incorporating a Hebraic perpetual calendar. This kind of challenge is one that Vacheron Constantin makes a point of taking up, having created some of the most accomplished Grand Complication watches in watchmaking history. For the three master watchmakers from the Maison's Les Cabinotiers department in charge of the project, such a commission represented the acme of their career, as well as a path strewn with obstacles. It took no less than eight years to bring Reference 57260 – presented in 2015 – to fruition.

United in complexity and in a relationship of mutual trust, the client and the three watchmakers in charge of this timepiece had found common ground, with the former's patience strengthened

by these specialists' ingenuity. Nurtured by the client's trust in the expertise of Vacheron Constantin's watchmakers, this community of spirit led to a sequel – as even before the Reference 57260 watch was completed, its non-identical twin was commissioned. This time, instead of the Hebraic calendar, the idea was to incorporate a Chinese perpetual calendar. *“The result is a true horological masterpiece and the World’s most complicated timepiece”* commented Mr Berkley. *“It is unlikely any other Maison would have been prepared to undertake such a Herculean challenge.”*

- Doing better than possible

The commissioner of this timepiece is clearly one of those passionate clients, such as Henry Graves Jr. or James W. Packard, who envision pushing the limits of feasibility. Appreciating challenges, they provide a Maison like Vacheron Constantin with the opportunity to progress, to question itself and to evolve. Through this timepiece and its clearly stated name, Vacheron Constantin pays a vibrant tribute to this great collector, who also owns the Vacheron Constantin pocket watch presented in 1946 to King Farouk I of Egypt.

With both patience and tenacity, in keeping with the Maison’s enduring mission to always do better than possible, the same three watchmakers from its Les Cabinotiers department continued the adventure alongside the commissioner, embarking upon a new 11-year epic. Resting on their laurels was out of the question, meaning they never stopped rethinking the functions and systems of the 2015 movement with the aim of improving it, optimising it or proposing different displays. The result is Calibre 3752, a double-sided mechanical marvel comprising 2,877 components.

Such optimising also implied innovating, given that no solution had ever yet been found for translating the complexity and irregularity of the Chinese calendar into cams and gears forming a perpetual horological configuration. Vacheron Constantin's three watchmakers took on this "Herculean" task, perpetuating the Maison’s time-honoured tradition of exclusivity and expertise in the service of the most demanding watchmaking requirements.

V. - INTERVIEW WITH CHRISTIAN SELMONI, STYLE & HERITAGE DIRECTOR

What is your overall impression of this watch?

I have boundless admiration for the complexity of this timepiece, its level of finishing and its precision, given the 63 complications. It is the epitome of hyper-horology, stemming from years of effort and ingenuity. After Reference 57260, one might have thought it represented the 'last word' in this field. As we can see, it is possible to take demands a step further by achieving what no one has ever managed before, namely a Chinese perpetual calendar without any correction until 2200.

Can you give us more details about this calendar?

The three watchmakers in our Les Cabinotiers department – who worked for 11 years on this timepiece – succeeded in modelling this extremely complex calendar. By that, we mean translating it and transcribing it into algorithms that can then be applied mechanically. In concrete terms, this translates into three mechanisms – which our watchmakers like to call "brains" – that control the calendar's different variables: its 19-year Metonic cycle; the New Year dates; its sexagesimal cycle of 60 combinations; and finally its solar agricultural cycle of one tropical year. Combining these elements results in a Chinese perpetual calendar whose difficulty lies not only in its irregularity but also in these different cycles. A veritable feat of innovation.

What technical solutions are also worth highlighting?

The regulator-type retrograde seconds hand is one of them. While it's already rare to have a retrograde seconds hand on a watch, the watchmakers at Les Cabinotiers wanted it to be as accurate as possible. This meant compensating for the time taken for the seconds hand to return to its initial position. They achieved this by adding two extra cams to the mechanism. The "Night" function of the Grande Sonnerie is another. This mode suspends the alarm at night for a period of time of the customer's choosing, a novel feature. Among the many other technical developments, the triple-axis armillary tourbillon deserves a special mention. Although it was already present in Reference 57260, it nonetheless represents a mechanical feat and makes perfect sense in the case of a pocket-watch which is by definition worn in a single position.

You mentioned the level of finishing applied to the calibre. Could you elaborate?

Hand finishing of movement components is one of the signature features of High Watchmaking and of Vacheron Constantin in particular, with techniques adapted to all the different types of surface: bevelling, rounding off, circular-graining, straight-graining, etc. While such operations already require perfectly mastered expertise for a simple movement comprising some 150 components, one can imagine what it represents with 2,877 components! What's more, this work

goes completely unnoticed because this double-sided watch has no openwork on the movement apart from the tourbillon aperture. It is only when you open the watch that you realise the scale of the task. What's more, the three watchmakers who worked on this timepiece and produced most of the decoration did not take the easy way out. In fact, the calibre has a sand-blasted frosted finish that leaves no room for mistakes, as any untimely handling leaves indelible traces. It's therefore easy to see why this watch took a whole year to assemble.

You also mentioned precision?

This timepiece does not claim to be a chronometer, as it has not been tested by the Official Swiss Chronometer Testing Institute (COSC). In-house tests nonetheless showed that Les Cabinotiers - The Berkley Grand Complication has a precision that exceeds COSC requirements, with a daily tolerance margin of -4 to +6 seconds. It is worth recalling in this context that this timepiece bears the Hallmark of Geneva, a guarantee of provenance, craftsmanship, reliability, expertise and precision. The Hallmark's criteria stipulate that the rate of the watch must vary by no more than one minute after seven days and this watch is well below this mark – which is quite remarkable, given its complexity.

VI.- THE CHINESE CALENDAR FROM ITS ORIGINS TO THE PRESENT

- A time-honoured dating system

According to legend, Chinese astronomy dates back to the 61st year of the reign of the Yellow Emperor (Huangdi), i.e. 2637 BCE. This legendary monarch is said to have invented the Chinese calendar, which has been an attribute of emperors' sovereignty ever since. Emperors inaugurated their reigns with a new calendar, often different from the previous one. For practical reasons, historians had to devise a chronology based on a single origin, dating back to the reign of Huangdi.

The last alteration to the traditional Chinese calendar as we know it today goes back to the work of the Jesuit Adam Schall von Bell, Imperial court astronomer in Peking (now Beijing). In 1645, he incorporated his latest observations – true solar time – into the combination of a solar (agricultural) calendar and a lunar (civil) calendar representing the Chinese system. While China adopted the Gregorian calendar in 1912 and the Common Era in 1929, the traditional calendar still serves as the unavoidable benchmark for festivals celebrated throughout the country.

- The principles behind the Chinese lunisolar calendar

- ❖ The 12 months are lunar. They begin on the day of the new moon and have 29 or 30 days to respect the average length of a lunation, which is 29.53 days.
- ❖ The 11 days missing from the solar year are made up by means of an intercalary or embolic 13th lunar month every 2-3 years, i.e. 7 times in a 19-year cycle.
- ❖ The solar 'periods' of the year correspond to 24 divisions of 15° each on the Sun's path along the ecliptic. Each period lasts about 15 days, giving an average duration that corresponds to the Gregorian calendar.
- ❖ The solar year begins at the winter solstice and has 365 or 366 days. The lunar year begins on the Chinese New Year – between 21 January and 21 February. Depending on the lunation, there are 353, 354 or 355 days in common years and 383, 384 or 385 days in embolismic years.
- ❖ The Chinese lunisolar calendar follows a 60-year sexagesimal cycle, composed of successive combinations of 10 celestial stems, associated with the five elements (wood, fire, earth, metal, water), and 12 earthly branches, associated with an animal: rat, ox, tiger, rabbit, dragon, snake, horse, goat, monkey, rooster, dog and pig.

VII.- VACHERON CONSTANTIN'S MASTERY OF GRAND COMPLICATIONS

At Vacheron Constantin, creating complicated watches for the most renowned clients is a tradition.

Three of the most extraordinary watches of their time became precious possessions of two Egyptian kings – Fouad 1 and his son Farouk – and Count Guy de Boisrouvray. A fourth equally remarkable one was made to the specifications of the great collector James Ward Packard.

❖ **James Ward Packard (1918)**

This 20K gold chiming pocket watch made its mark on the history of High Watchmaking. It includes a quarter and half-quarter repeater with Grande and Petite Sonnerie as well as a single-counter chronograph. Founder of the Packard Motor Company, James Ward Packard commissioned and acquired it in 1918.

❖ **King Fouad 1 of Egypt (1929)**

This large, highly complicated 18K yellow gold and enamel pocket watch is a chiming watch featuring a minute-repeater with Grande and Petite Sonnerie, equipped with three gongs and three hammers, as well as a split-seconds chronograph with a 30-minute counter, perpetual calendar and indication of the phases and age of the moon. It was presented to His Majesty King Fouad 1 of Egypt by the Swiss expatriate community in 1929.

❖ **King Farouk 1 of Egypt (1946)**

This extremely complex, very large 18K yellow gold pocket watch is a chiming model. It includes a minute-repeater with Grande and Petite Sonnerie, equipped with three gongs and three hammers, a split-seconds chronograph with a 30-minute counter, perpetual calendar, indication of the phases and age of the moon, alarm and two power-reserve indicators. It was presented to King Farouk I of Egypt by the Swiss authorities in 1946 and surpasses its predecessor in terms of complexity.

❖ **Count Guy de Boisrouvray (1948)**

This pocket-watch with its large 18K gold hunter-type case includes a minute-repeater with three hammers striking three gongs, along with a perpetual calendar with leap-year and moon-phase indications, split-seconds single-counter chronograph and alarm. It was sold to Count Guy de Boisrouvray in 1948.

❖ **Reference 57260 (2015)**

Reference 57260 is a horological masterpiece uniting previously unimaginable technical complications. Eight years of development went into creating this timepiece. The watch is an

entirely original creation with a total of 57 complications, including several unprecedented ones such as the first Hebraic perpetual calendar.

VIII.- Complications List

Time measurement (9)

1. Regulator-type hours, minutes and seconds for mean solar time
2. Retrograde second for mean solar time
3. Day and night indication for reference city
4. Visible spherical armillary tourbillon regulator with spherical balance spring
5. Armillary sphere tourbillon
6. World time indication for 24 cities
7. Second time zone hours and minutes (on 12 hours display)
8. Second time zone day and night indication
9. System to display the second time zone for the Northern or Southern hemispheres

Gregorian Perpetual Calendar (7)

10. Gregorian perpetual calendar
11. Gregorian days of the week
12. Gregorian months
13. Gregorian retrograde date
14. Leap-year indication and four-year cycle
15. Number of the day of the week (ISO 8601 calendar)
16. Indication for the number of the week within the year (ISO 8601 calendar)

Chinese Perpetual Calendar (11)

17. Chinese perpetual calendar
18. Chinese number of the day
19. Chinese name of the month
20. Chinese date indication
21. Chinese zodiac signs
22. 5 elements and 10 celestial stems
23. 6 energies and 12 earthly branches
24. Chinese year state (common or embolismic)
25. Month state (small or large)
26. Indication for the Golden number within the 19-year Metonic cycle
27. Indication for the date of the Chinese New Year in the Gregorian calendar

Chinese Agricultural Perpetual Calendar (2)

28. Chinese agricultural perpetual calendar
29. Indications of seasons, equinoxes and solstices with solar hand

Astronomical Indications (9)

30. Sky chart (calibrated for Shanghai)
31. Sidereal hours
32. Sidereal minutes

33. Sunrise time (calibrated for Shanghai)
34. Sunset time (calibrated for Shanghai)
35. Equation of time
36. Length of the day (calibrated for Shanghai)
37. Length of the night (calibrated for Shanghai)
38. Phases and age of the moon, one correction every 1027 years

Split-seconds Chronograph (4)

39. Fifths of a second chronograph (1 column wheel)
40. Fifths of a second split-second chronograph (1 column wheel)
41. 12-hour counter (1 column wheel)
42. 60-minute counter

Alarm (7)

43. Progressive alarm with single gong and hammer striking
44. Alarm strike / silence indicator
45. Choice of normal alarm or carillon striking alarm indicator
46. Alarm mechanism coupled to the carillon striking mechanism
47. Alarm striking with choice of grande or petite sonnerie
48. Alarm power-reserve indication
49. System to disengage the alarm barrel when fully wound

Westminster Carillon (8)

50. Carillon Westminster chiming with 5 gongs and 5 hammers
51. Grande sonnerie passing strike
52. Petite sonnerie passing strike
53. Minute repeating
54. Night silence feature (between 22.00 and 08.00 hours – hours chosen by the owner)
55. System to disengage the striking barrel when fully wound
56. Indication for grande or petite sonnerie modes
57. Indication for silence / striking / night modes

Additional features (6)

58. Power-reserve indication for the going train
59. Power-reserve indication for the striking train
60. Winding crown position indicator
61. Winding system for the double barrels
62. Hand-setting system with two positions and two directions
63. Concealed flush-fit winding crown for the alarm mechanism

IX. - Technical Data

LES CABINOTIERS - THE BERKLEY GRAND COMPLICATION

Reference	9901C/000G-B472 Hallmark of Geneva certified timepiece
Calibre	3752 Developed and manufactured by Vacheron Constantin Mechanical, manual-winding 72 mm (31 ½'') diameter, 36 mm thick Approximately 60 hours of power reserve 2.5 Hz (18,000 vibrations/hour) 2'877 components 245 jewels
Caliber plates	Plate 152: Chronograph Plate 252: Gregorian perpetual calendar Plate 352: Chronograph & Chinese perpetual calendar Plate 552: Astronomical indications
Indications	Time functions Perpetual calendar function: Gregorian and Chinese Chinese agricultural perpetual calendar functions Astronomical indications Split-seconds chronograph (3 column-wheels) functions Alarm functions Westminster Carillon striking functions Additional features
Case	18K white gold 98 mm in diameter, 50.55 mm thick
Dial	Metal Opaline silver-toned
Number of hands	Front: 19 / back: 12
Accessories	Delivered with a corrector pen & a magnifying glass
Additional Information	Single-piece edition, crafted on demand Total weight: 980gr