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Les Cabinotiers
The Berkley Grand Complication
Les Cabinotiers 阁楼工匠 The Berkley 超卓复杂钟表杰作

The world's most complicated watch
全球最复杂時計

The first Chinese perpetual calendar
首枚中华万年历时計

A masterpiece of innovation with 63 complications
融汇 63 项复杂功能的创新杰作

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- A world first in the form of a Chinese perpetual calendar programmed until 2200.
- 江诗丹顿推出世界上首枚可精准运行至 2200 年的中华万年历时計
- A world record, with a total of 63 horological complications integrated into a timepiece that required 11 years of research and development.
- 時計历经 11 年研制而成，凭借 63 项钟表复杂功能创下世界纪录
- A human adventure shared by three watchmakers and the commissioner, the same people behind the Reference 57260 watch presented in 2015.
- 新作集结了品牌于 2015 年打造出的旷世巨作——参考编号 57260 的三位制表大师原班人马，应同一位钟表藏家委托，再创非凡传奇

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.

江诗丹顿推出全球迄今最复杂的時計杰作，融汇 63 项钟表复杂功能，机芯由 2,877 个精密零件构成，一举超越品牌此前创下的世界纪录。这也是世界上首枚真正具备中华万年历功能的時計。考虑到这一阴阳合历体系特有的不规则周期及其复杂变化，時計内部搭载的 3752 机芯采用独特的机械构造，确保精准运行至 2200 年，彰显出精妙非凡的制表匠心。此枚時計历经 11 年潜心研制，其中仅零件组装就需花费整整一年的时间，最终造就这一当代制表史上的里程碑杰作。其设计与 2015 年问世的参考编号 57260 有着异曲同工之妙，皆由同一位钟表藏家委托打造。新作以该钟表藏家的名字命名为 Les Cabinotiers 阁楼工匠 - The Berkley 超卓复杂功能怀表。

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

I. 江诗丹顿制表艺术的巅峰诠释

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. 打造史上最精巧复杂时计的雄心，源于江诗丹顿自 1755 年创立以来深厚的制表艺术积淀。逾两个半世纪的悠久历史，塑造了品牌不断挑战极限、开拓无尽可能的独特个性。全新 Les Cabinotiers 阁楼工匠 - The Berkley 超卓复杂功能怀表便再次诠释了这一拓进精神。此枚融汇了 63 项复杂功能的时计杰作不仅蕴含精深技艺，亦展现出内敛优雅的设计美学与精湛的装饰打磨细节。三位制表大师历时 11 年潜心研制，倾注非凡巧思，方才造就这一钟表杰作。其中仅机芯组装便耗时 12 个月，在对各零件进行装饰打磨之前还需先进行试装，以确保机芯平稳运转。

- An unprecedented total of 63 horological complications
63 项复杂功能的空前组合

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.

这枚双面表盘怀表搭载的 3752 机芯由 2,877 个零件组成，包括 245 颗宝石、31 枚指针和 9 个显示盘。机芯几乎囊括了高级钟表领域的各项复杂功能，将其以最精妙的形式融于一体。其中包括：追针计时；精密月相显示，1,027 年内无需校正；格里高利万年历，以国际标准 ISO 8601 日历模式读取；逆跳小秒针，配备归零时间补偿机制；三轴陀飞轮；星空图，以恒星日（23 小时 56 分 4.09 秒）为周期持续旋转；第二时区昼夜显示，视窗中饰有精心雕刻的极地方位投影图，以独特的地理视角呈现昼夜交替。

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

时计中配备的 63 项复杂功能涵盖以下类别：

- ❖ 时间显示及调节功能：9 项
- ❖ 格里高利万年历功能：7 项
- ❖ 中华万年历功能：11 项
- ❖ 中华农历万年历功能：2 项
- ❖ 天文功能显示：9 项
- ❖ 追针计时功能：4 项
- ❖ 闹铃功能：7 项
- ❖ 大自鸣功能：8 项
- ❖ 其他功能：6 项

II.THE FIRST CHINESE PERPETUAL CALENDAR

II.世界上首枚中华万年历时计

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.

从昼夜交替、四季更迭和日月轮转中，人类很早便领悟到时间的概念。但直到书写文字的出现（最早可追溯至公元前 4 千年），对时间的预测才成为可能。自那时起，人们便开始通过观测天象来演算时间周期，在漫长的历史中形成了不同的历法体系。其中有些以月球周期为基准，称为“太阴历”（如伊斯兰历）；有些则基于太阳周期，称为“太阳历”（如格里高利历，即公历）；还有兼顾调和两种机制的“阴阳合历”，中国农历、古希腊历、希伯来历和凯尔特历均属于最后一种类型。

- A complex and irregular system
错综复杂的不规则历法体系

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.

中国农历的月份遵循阴历，以月亮圆缺变化的周期（朔望月）为基准，每月以新月之日（朔日）为始，根据东八区（以贯穿山东半岛和杭州的东经 120 度线为中线）标准时间计算。由于朔望月的平均周期为 29.53 天，因此每月的天数在 29 天和 30 天之间不规则交替。然而，12 个朔望月的总天数比一个太阳回归年（365.2422 天）少 11 天。为此，中国农历每隔两至三年便在一年中增设一个月，增加的月份即为闰月，这与每 19 年置 7 个闰月的默冬周期（Metonic cycle）恰好呼应。默冬周期以其发现者、公元前 5 世纪古希腊天文学家默冬（Metion）的名字命名，以 235 个朔望月为一个周期，其长度与 19 个回归年相当（即 6,940 天），此时阴历和阳历再次完全同步。根据朔望月的变化，农历平年为 353、354 或 355 天，闰年为 383、384 或 385 天。另一个需要考虑的因素是农历新年，其日期在公历 1 月 21 日至 2 月 21 日之间浮动，标志着农历年的开始。

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.

中国农历的年份则遵循阳历，反映了太阳回归年的周期，即以东经 120 度线为基准，两个相邻冬至的时间间隔。一年中共二十四节气，指将地球视角的太阳周年视运动轨道（黄道）划分为 24 个等份，每 15 度一等份，对应一个节气，每个节气持续约 15 天。如此一来，农历年的平均长度恰好与格里高利历相符，即一年 365 或 366 天。

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.

中国农历的另一特点是，时间单位的计量以“天干”和“地支”两组符号表示。十天干与十二地支组合成六十个计序号，最常用于纪年，也可表达月、日、时的概念。天干还与五运（金、木、水、火、土）和阴阳属性相关；地支与十二生肖对应：子鼠、丑牛、寅虎、卯兔、辰龙、巳蛇、午马、

未羊、申猴、酉鸡、戌狗、亥猪。在这一历法体系中，天干和地支的序号依次循环相配，以六十年为周期，即十天干和十二地支（或生肖）的最小公倍数，又称六十甲子周期。

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.

阴阳合历讲求互补。比如，必须参考阳历体系来确定具体的闰月时间和农历年起始日期，以实现同步。为此，中国历法经过不断改进，力求尽可能贴合实际的天文现象。然而，对精确性的执着追求，亦使这一基于不规则周期的历法体系尤为错综复杂。尽管科学家们已通过理论分析，实现 1645 年以来农历计时的程序化，但要将其应用于精密的机械装置中，挑战难度不言而喻。

- A world first
全球首创

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.

全新 Les Cabinotiers 阁楼工匠 - The Berkley 超卓复杂功能怀表的创新之处主要体现为对中国传统历法的独到诠释。这是世上首枚中华万年历时计，背后凝聚着制表大师无比的细致与耐心，饱含其精妙巧思和对中国文化的深入理解。

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.

具体而言，三位制表大师需首先构建中国农历的算法模型，再将其转化为可自主运行至 2200 年的机械程序。其中必须考虑这一历法体系的不规则性，包括不同年份和月份长度的不规则变化，以及岁首日期的浮动。为此，制表大师在机芯正面另设了两组机械装置，由三个机械“大脑”分别控制机芯的三套凸轮和齿轮系统，各自驱动阴历月周期、阳历年周期和默冬周期。这款时计中 19 年默冬周期（或称金数）的显示区域位于 3 点位小表盘。

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.

除精确至 2200 年的机械“编程”外，江诗丹顿制表大师还进一步施展精妙巧思，将作为中华民族社会生活重要节点的农历新年日期呈现于圆盘显示上，精准指示该日期每年在 1 月 21 日至 2 月 21 日之间的变化。

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.

正面表盘主要汇集了中国传统农历的各项历法显示。读取时间时，需首先判断当年为平年还是闰年（通过表盘 11 点位视窗显示），当月是小月还是大月（通过新年日期固定显示盘 12 点位视窗显示）。万年历信息均以汉字标注，包括 6 点位指针式日期显示，以及分列于 8 点和 4 点位的视窗式星期和月份显示。

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.

天干地支周期是中国历法乃至整个宇宙观的基石，全新时计中囊括了与之相关的丰富信息，并极为精妙地涵盖了不同时间尺度——时、日、年。9 点位小表盘以跳动方式显示代表当天日期的天干及对应的阴阳和五运属性。3 点位小表盘则以持续扫动的指针指示十二地支，表示十二时辰。古代中国将一天分为十二个时辰，每个时辰相当于公历的两小时，以夜间 11 点为起始。月相盘下方的视窗呈现当年的生肖形象，结合新年日期盘中显示的天干信息，可判断出该年在六十甲子周期中的排序。

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.

作为对中华万年历信息的重要补充，精密月相和月龄显示位于 12 点位小表盘上，1,027 年内无需调校。

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. 最后，表背以中央指针显示农历二十四节气，以及月份长度、季节、冬夏二至点和春秋二分点。

III. A HIGH-PRECISION ASTRONOMICAL AND CHIMING WATCH

III. 精准可靠的天文报时时计

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.

江诗丹顿制表大师倾尽匠心，将高级钟表领域最卓越的复杂功能悉数融汇于此枚时计中。从精妙的天文和报时功能，到计时、闹铃和时区等各项实用复杂功能，均秉承对精准性能的执着追求。

- Astronomical indications and Gregorian calendars
天文功能显示与格里高利历

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.

作为一枚精密的天文時計，全新 Les Cabinotiers 阁楼工匠 - The Berkley 超卓复杂功能怀表亦探索了格里高利历的奥妙。時計具备格里高利万年历功能，可精准运作至 2200 年。根据 1582 年弥撒议会（Council of Trent）要求开展的儒略历改革，这一世纪年为非闰年。彼时，在教皇格里高利十三世（Pope Gregory XIII）的推动下，从旧历中删去了 10 天，以确保与季节周期同步。为避免再次偏离，新历决定每 400 年减少 3 个闰年，只有能被 400 整除的世纪年为闰年。

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. 格里高利万年历信息显示于背面表盘上，由机芯背面两组附加装置的其中之一驱动该功能。各项显示信息包括 12 点位的逆跳日期，以及分别位于 9 点、3 点和 1 点位置的星期、月份和闰年周期显示。基于格里高利历，時計还引入了另一套日期和时间的表示方法——ISO 8601 国际标准。1988 年，为了避免在国际交流中引起混淆，此标准规定了年份（四位数）、月份（1-12）、周数（1-52）和日期（1-31 或 1-7）的数字格式。全新 Les Cabinotiers 阁楼工匠 - The Berkley 超卓复杂功能怀表中，ISO 8601 日历周数由 3 点位小表盘上的指针指示，星期数字通过其上方视窗显示。

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.

时计的天文功能并不局限于历法显示。表背设有星空图，由机芯背面第二组附加装置驱动，实时显示从上海观测到的天穹星座。为确保精准，星空图圆盘完整旋转一圈的时间为一个恒星日。以星空中的某一固定恒星为参照，地球自转 360 度的时间，即一个恒星日的时间。由于地球同时自转和公转，以固定恒星为参照的情况下，恒星日比一个日历日少约 4 分钟，为 23 小时 56 分钟 4 秒。此枚时计中，恒星时可通过带有 15 分钟刻度的 24 小时刻度盘以逆时针方向读取，这一时间信息对于星空图调校至关重要。星空图上的偏心式椭圆形图案可在佩戴者通过怀表观测星位时，精准呈现星座在北半球星空的实时位置。

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.

表背还设有时间等式显示，进一步丰富时计的天文功能。由于地球公转轨迹为椭圆形而非圆形，且地球自转轴与黄道面之间有24度夹角，一年中太阳每天经过至高点的时间不固定。一年当中不同的时间段，太阳时（真太阳时）与24小时制标准时（平太阳时）之间的差距从-16分钟到+14分钟之间不等，两者全年中仅四次完全相同，即二分二至日（春分、夏至、秋分、冬至）。这一差值名为时间等式，在天文学领域则将其称为“时间校正（time correction）”。时间等式功能通过一枚凸轮控制。除了季节更迭外，地球公转还决定着昼夜长短变化。背面表盘的5点和7点位置分别显示日出日落时间和昼夜时长，以上海作为观测基点计算得出。

- [Grande Sonnerie and alarms](#)
- [大自鸣和闹铃功能](#)

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.

大自鸣时计的机械构造极为复杂，在乐音时计中独树一帜。大自鸣模式下，时计每逢整刻会依次完整报出小时和刻钟；小自鸣模式下，整刻仅报出整刻时间，不会继续报出小时。如今仅有少数制表师能创作出大自鸣时计，因为要将报时机制融入机芯构造，设计必须极为精巧，确保机芯安

全可靠、报时音序和谐悦耳，并且通过能量管理精准控制音锤每 24 小时敲击音簧 912 下。自创立以来，江诗丹顿便在报时表领域展现出非凡造诣。据历史档案记载，品牌首份报时表订单可追溯至 1806 年。

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.

此枚时计中，江诗丹顿制表大师倾注非凡巧思，为 3752 机芯配备西敏寺钟声大自鸣机制。西敏寺钟声（Westminster chime）是伦敦西敏寺英国国会大厦著名的大本钟（Big Ben）使用的报时乐曲，其报时钟声为四小节旋律，由四个不同频率的音符组成。此外，这一大自鸣机制还会奏响第五种音符，代表小时。五组音锤和音簧鸣报出悠扬乐音，通过表壳中层 6 点位的三问报时滑杆，即可启动报时功能。

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.

正面表盘 10 点位设有指针式选择器，提供“报时”、“夜间”和“静音”三种模式选择。在“报时”模式下，时计会如时钟一般，每逢整刻自动报时；在“夜间”模式下，根据藏家选定的时段，时计在晚上 10 点至次日早上 8 点之间自动关闭报时模式，节省动力的同时，亦可营造出安心宁静的夜间睡眠氛围；在“静音”模式下，报时机制则完全关闭。此外，时计还另设一个同轴选择器，用于切换大自鸣和小自鸣报时模式。这一报时机制配有独立发条盒，动力储存状态通过 9 点位的指针显示。

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.

除报时装置外，时计还搭载闹铃系统，由表壳中层 1 点位的专用滑杆控制。闹铃时间通过表冠设置，闹铃时针位于正面表盘 12 点位，与怀表时针同轴。闹铃功能同样由专属独立发条盒提供能量，通过表壳中层 5 点位的旋钮表冠上链，再次彰显出时计精妙的技艺内涵。正面表盘的 1 点位以指

针指示闹铃力矩，并设有闹铃模式显示。其中，“常规”模式下，每逢闹铃时间，第六个音锤便会敲击专属音簧，以渐进方式奏响独特的单一音符；“钟声”模式下，闹铃启动后鸣奏西敏寺钟声乐音，具备大自鸣和小自鸣两种鸣音模式。为了确保机械装置的安全性，大自鸣报时机制和闹铃机制均配备锁定系统，当相应发条盒中的能量耗尽时，会自动关闭鸣报功能。

- Triple-axis tourbillon regulator
- 三轴陀飞轮调节装置

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.

全新時計不仅具备精妙的天文显示和乐音报时复杂功能，在时间显示这一基本功能方面亦饱含巧思，可同时精确显示多个时区的时间，甚至实现短时计时。如此精密的计时性能，得益于独特的擒纵和调速系统，其设计旨在有效调节能量传输节奏，确保轮系的精准运转。为此，制表大师巧妙地研制出配备球形摆轮游丝的三轴浑天仪式陀飞轮调节装置，以 2.5 赫兹的频率运行，每小时振动 18,000 次。“浑天仪式陀飞轮”的名称源自法国天文学家、法国国王路易十六御用制表大师 Antide Janvier（1751-1835 年）的伟大发明——浑天仪，这是一种用于演示行星轨迹的旋转球体。

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.

在这一独特构造中，陀飞轮中央的擒纵系统方位不断转换，以抵消地心引力对机芯等时性的影响，这一设计对于长期垂直放置的怀表而言尤为重要。此外，陀飞轮还特别采用球形摆轮游丝，相较扁平游丝性能更优越。在時計背面，可尽情欣赏到陀飞轮曼妙的机械旋舞，随着陀飞轮框架的持续旋转，每 15 秒呈现一次品牌标志性马耳他十字造型。在陀飞轮的调节下，各项计时复杂功能有条不紊地保持着精准运作，考虑到 3752 机芯的复杂构造，这其中的技术成就足以令人称叹。

- Precision display and split-seconds chronograph
- 精准时间显示和追针计时功能

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.

时间显示位于正面表盘，采用规范指针的三针一线指示方式，1点和3点位分别设有昼夜指示窗和60小时动力储存显示器。三针分立的指示方式源于在传统制表工坊中用于校准时计的精密时钟。全新时计以中央指针指示分钟，时针和秒针则分别位于12点和6点位小表盘上。Les Cabinotiers 阁楼工匠部门的制表大师还为秒钟显示引入了逆跳机制，采用精妙复杂的技术构造，通过增设两个凸轮来补偿秒针归零所需的时间，令走时更加精准。

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.

由于机芯振频为2.5赫兹，此枚怀表的计时精度达1/5秒，此外还具备追针计时功能。这一装置采用两根中央扫秒针，通过掣停其中一根指针，可记录两根针之间的间隔时间，停针重启后，又会“追上”仍在运动的另一根指针。不同于参考编号57260的双逆跳秒针设计，全新时计采用更为经典的双秒追针机制，两根计时秒针沿同一方向转动。这一机制嵌入于机芯正面第二组附加装置中，配备三个导柱轮和水平离合装置，由集成在表冠内的按钮控制，重启追针秒针的按钮位于表壳中层11点位。小时和分钟计时盘分别设于正面表盘的3点和9点位置，以银色指针指示。为与之区分，同样位于正面的时间显示指针呈蓝色，中国农历显示和报时功能的指针则为金色，确保各项显示清晰易辨。

- Second time zone and world time
- 第二时区和世界时间

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.

此枚時計伴随藏家仰望苍穹，亦纵行寰宇。背面表盘显示世界时间，通过 10 点位视窗，可从全球 24 个城市中选择任意一个城市时间。24 个城市分别代表 1884 年美国华盛顿国际子午线会议（International Meridian Conference）上确立的全球 24 个时区。城市缩写旁边标注有当地与格林威治标准时间的时差。例如“N.Y. GMT -5”代表纽约时间，比格林威治标准时间晚 5 小时。城市视窗下方，9 点位小表盘以 12 小时制显示第二时区小时和分钟。11 点位设有独立昼夜指示窗，其中的旋转圆盘上精心雕刻北半球的极地方位投影图，由此可观察到第二时区某一地点视角下的日照时长。

- Finishing and hand decorations
- 精致的装饰与手工打磨细节

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.

全新时计的复杂机制，固然需要历经漫长的研发与探索，表壳部件和机芯 2,877 个零件的装饰打磨也极为费时，即使是隐而未现的细节亦饱含入微匠心。

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.

表壳以 18K 白金制成，正反两面的表圈均经过抛光处理，尽显优雅格调。上链表冠旁设有嵌入表壳中层的蓝宝石水晶视窗，以便在上链或调时过程中观察表冠的位置。怀表正面，乳光银色主表盘与四个旭日纹副表盘相得益彰；背面表盘同样呈乳光银色，与正面主表盘和谐呼应。

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.

机芯同样经过精细的装饰打磨。金色磨砂底板背面饰有日内瓦波纹，这项装饰工艺难度极高，稍有不慎便会在零件表面留下无法磨灭的痕迹。研制和组装时计的制表大师亦负责大部分装饰工序，整个操作过程必须格外谨慎。最终的時計作品饱含精妙匠心，彰显出整体优雅和谐的风范。

IV. A HUMAN ADVENTURE

IV. 竞巧天工

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.

全新 Les Cabinotiers 阁楼工匠 - The Berkley 超卓复杂功能怀表融汇 63 项钟表复杂功能于一身，一举刷新了参考编号 57260 此前创下的傲人记录，成为制表史上最复杂的時計杰作，并经日内瓦印记认证。在这两枚传世臻作的背后，凝聚着一位钟表藏家对传统制表艺术的真挚热忱，以及江诗丹顿 Les Cabinotiers 阁楼工匠部门三位制表大师与天工竞巧的壮志。

- The patience and trust of a passionate enthusiast
- 委托藏家的热切期待、耐心与信任

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.

参考编号 57260 和全新 Les Cabinotiers 阁楼工匠 - The Berkley 超卓复杂功能怀表由同一位美国商人暨慈善家委托定制。半个世纪以来，这位慧眼独具的钟表藏家凭借非凡耐心，将一系列怀表臻作纳入个人珍藏。他欣赏敢为不凡的挑战，向江诗丹顿提出的首个挑战便是打造彼时世界上最复杂的時計，且必须具备希伯来万年历功能。凭借此前创制过诸多精妙超卓复杂功能時計的超凡积淀，江诗丹顿欣然接受了这一挑战。Les Cabinotiers 阁楼工匠部门的三位制表大师受命负责这一定制项目，这是他们迈向制表生涯巅峰的一场探索之旅，但必须踏过满路荆棘。历经长达八年的潜心钻研，参考编号 57260 最终于 2015 年瞩目问世。

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.”

秉承对于复杂制表艺术的共同热情，藏家与制表大师之间建立了深厚的默契和互信。三位大师的独到巧思与超凡造诣，也令藏家对整个研制过程更富耐心。正是出于这一心灵共鸣，以及对品牌制表大师精湛技艺的信任，在参考编号 57260 尚未完成时，藏家便决定再定制一枚有着异曲同工之妙的序章之作，但由希伯来历改为中国农历万年历功能。正如 Berkley 先生所言：“这枚新作是一枚当之无愧的钟表杰作，也是迄今世界上最精妙复杂的时计。我想，当今没有任何一家其他制表品牌能够完成如此艰巨的挑战。”

- Doing better than possible
- 精益求精

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.

委托打造此枚新作的客户与美国著名钟表藏家、银行家小亨利·格雷夫斯（Henry Graves Jr.）和汽车制造商詹姆士·沃德·帕克（James W. Packard）等前辈一样，也对挑战制表极限怀有热切向往。他们的慷慨支持为以江诗丹顿为代表的制表品牌提供了超越自我、不断拓进的契机。正如时计之名所示，江诗丹顿以此枚杰作致敬这位品位非凡的钟表藏家。他的藏品还包括品牌 1946 年呈献给埃及国王法鲁克一世（King Farouk I）的古董怀表。

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.

秉承着精益求精的品牌信念，Les Cabinotiers 阁楼工匠部门的三位制表大师以超凡耐心和不屈毅力，携手委托藏家再度展开一段历时 11 年的史诗探索之旅。他们并不满足于复刻过往成就，而是对参考编号 57260 中机芯的各项功能和机制予以重新构思，探索更精妙的机械构造和独特的显示设计，最终成功打造出由 2,877 个零件组成的 3752 双面机械机芯。

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.

机芯中凝聚创新巧思，以复杂的凸轮和齿轮体系构成精密的中华万年历装置，首创先河地精准呈现中国农历的不规则周期和复杂变化。在这项艰巨挑战中，江诗丹顿三位制表大师延续品牌定制时计的超卓传统和精深造诣，致力将钟表藏家对于至臻时计的期待变为现实。

V. INTERVIEW WITH CHRISTIAN SELMONI, STYLE & HERITAGE DIRECTOR

V. 与江诗丹顿风格及传承总监 Christian Selmoni 先生对谈

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.

您对这枚怀表有何整体评价？

这枚怀表采用复杂精密的机械构造，将 63 项复杂功能融于一身，确保其精准性能的同时，并饰以精湛的装饰打磨细节，令人赞叹不已。时计历经多年研发，凝聚非凡创想，堪称超卓制表艺术的典范。自问世以来，参考编号 57260 或许被许多人视作这一领域的巅峰之作，但如今，江诗丹顿以全新杰作—无需调校亦可精确运行至 2200 年的中华万年历时计，再次拓入无人企及的制表疆域。

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.

您能否详细介绍一下这项万年历功能？

历经 11 年钻研与摸索，江诗丹顿 Les Cabinotiers 阁楼工匠部门的三位制表大师成功构建出中国农历的算法模型，再将其转化为精妙的机械程序，以精准呈现这一极为复杂的历法。具体而言，制表大师将其分解成三组机械装置，三个机械“大脑”分别控制这一历法体系中的各项变量，即：19 年默冬周期，带农历新年日期显示；天干地支六十甲子周期；以及以太阳回归年为基准的农历年周期。不同周期的融合及其中的不规律性，正是中华万年历机制研发工作中的主要挑战，而这三组装置则为此提出了创新的解决方案。

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.

除了中华万年历机制，这枚怀表还有哪些技术亮点？

这枚怀表的亮点之一是规范指针式逆跳秒针的设计。逆跳秒针在时计中本就罕见，Les Cabinotiers 阁楼工匠部门的制表大师更是在这一精密机制中增设了两个凸轮，以补偿秒针归零所需的时间，最大限度地提升这一显示机制的精准性能。大自鸣报时功能的“夜间”模式也是一大亮点。在这一全新模式下，报时功能会在客户选定的晚间时段内自动关闭。此外，三轴浑天仪式陀飞轮也是一项值得特别关注的技术成果。尽管这一装置在参考编号 57260 中早已引入，但这仍是一项极为瞩目的机械成就，对长期保持垂直状态的怀表而言具有重要意义。

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.

您刚才提及了机芯的装饰打磨，能否介绍一下细节？

机芯零件的手工装饰打磨，是高级制表的标志之一，也是江诗丹顿的一项技术专长。品牌娴熟掌握各项表面处理工艺，包括倒角和圆角打磨、圆形粒纹、直纹打磨等。即便是一枚只有约 150 个零件的简单功能机芯，其装饰打磨也需要极为高超的技艺，这枚由 2,877 个零件组成的机芯装饰难度更是可想而知。但由于怀表采用双面表盘设计，除陀飞轮视窗外，无任何开口显露机芯的内部构造，因此只有打开表壳，才能欣赏到其精细的装饰打磨工艺。研制时计的三位制表大师亦负责大部分装饰工序，他们对隐于内部的机芯并非仅仅是简单处理，而是采用喷砂工艺赋予其磨砂质感，这一操作稍有不慎便会在表面留下无法磨灭的痕迹，因此仅时计组装便耗时整整一年。

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.

能否再介绍一下这枚怀表的精准性能？

此枚怀表尚未送交瑞士官方天文台（COSC）检测认证，因此未将其称作“天文台表”。经认证的天文台表的日均误差范围为-4 秒至+6 秒，然而据品牌内部检测结果显示，Les Cabinotiers 阁楼工匠 - The Berkley 超卓复杂功能怀表的精准度已超越 COSC 的认证要求。值得一提的是，该枚时计已获得日内瓦印记认证，表明其产地、工艺、可靠性、制表技艺和精准性能均得到认可。日内瓦印记认

证标准规定，时计的 7 日误差不超过 1 分钟，而此枚怀表的误差远低于这一数值。考虑到其复杂的功能机制，能实现如此精准的走时性能，实在是令人称叹。

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

VI.- 中国农历的起源与现况

- A time-honoured dating system
- 历史悠久的历法体系

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.

在中国的古老传说中，天文观测传统可以追溯至黄帝在位的第 61 年，即公元前 2637 年。据传，中国首部历法正是创始自这位上古帝王。历法也由此成为了皇权的象征，历代君主在建立新朝后，大多会颁布区别于旧朝历法的新历。为便于记录和研究，历史学家设计了一套统一的编年体系，以黄帝即位之时为起点。

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.

我们如今熟知的中国传统农历年经过了历代修订与完善，其中曾任清廷御用天文学家的德国耶稣会士汤若望（Adam Schall von Bell）为最后一次修订作出了卓著贡献。1645 年，他将自己对真太阳时的最新观测成果引入中国的农历。在这一阴阳合历体系中，阳历主导农事安排，阴历指引日常生活。此后，中国虽于 1912 年和 1929 年先后实行格里高利历和公元纪年，但仍将农历作为确定国家传统节日的重要历法依据。

- The principles behind the Chinese lunisolar calendar
- 中国阴阳合历的基本原理
 - ❖ 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.
- ❖ 12 个月份以月亮圆缺变化的周期（朔望月）为基准，每月以新月之日（朔日）为始。由于朔望月的平均周期为 29.53 天，每月的天数为 29 或 30 天。
- ❖ 由于 12 个朔望月的总天数比一个太阳回归年少 11 天，每隔两至三年在一年中增设一个闰月，即每 19 年置 7 个闰月。
- ❖ 一年共二十四节气，将太阳视运动轨道（黄道）划分为 24 个等份，每 15 度一等份，对应一个节气，每个节气持续约 15 天。如此一来，农历年的平均长度恰好与格里高利历相符。
- ❖ 每个太阳回归年以冬至为岁首，一年有 365 或 366 天。每个农历年始于农历新年，日期在公历 1 月 21 日至 2 月 21 日之间浮动。根据朔望月的变化，农历平年为 353、354 或 355 天，闰年为 383、384 或 385 天。
- ❖ 中国阴阳合历遵循六十甲子周期，由十天干与十二地支循环组合而成。天干与五行（金、木、水、火、土）相关；地支与十二生肖对应：子鼠、丑牛、寅虎、卯兔、辰龙、巳蛇、午马、未羊、申猴、酉鸡、戌狗、亥猪。

VII.- VACHERON CONSTANTIN'S MASTERY OF GRAND COMPLICATIONS

VII.-江诗丹顿的超卓复杂功能制表造诣

At Vacheron Constantin, creating complicated watches for the most renowned clients is a tradition. 为尊贵客户打造复杂功能计时是江诗丹顿一贯秉承的传统。

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.

江诗丹顿曾推出三枚在当时堪称举世之作的精妙计时作品，分别被埃及国王弗阿德一世（King Fouad I）及其子法鲁克国王（King Farouk I），以及法国盖·德·波伊斯洛夫雷伯爵（Count Guy de Boisrouvray）收为珍藏。品牌还曾应美国著名钟表藏家詹姆士·沃德·帕克（James Ward Packard）的委托，为其定制一枚同样精湛绝伦的计时杰作。

❖ 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.

❖ 詹姆士·沃德·帕克（1918 年）

此枚 20K 金质报时怀表是高级制表史上赫赫有名的杰作，集合了二问和半刻问报时、大小自鸣以及单按钮计时功能。怀表由美国帕克汽车公司（Packard Motor Company）创始人詹姆士·沃德·帕克委托定制，于 1918 年交付。

❖ 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.

❖ 埃及国王弗阿德一世（1929 年）

此枚以 18K 黄金和珐琅打造的大尺寸怀表设计极尽复杂，搭载采用三音簧三音锤结构的三问报时及大小自鸣功能，具备带 30 分钟计时盘的追针计时功能，以及万年历、月相和月龄显示功能。计时于 1929 年由居住埃及的瑞士侨民团体觐献给埃及国王弗阿德一世。

❖ 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.

❖ 埃及国王法鲁克一世（1946 年）

此枚以 18K 黄金打造的超大尺寸怀表融汇多项复杂功能，包括采用三音簧三音锤结构的三问报时及大小自鸣功能，具备带 30 分钟计时盘的追针计时功能，万年历、月相和月龄显示功能，以及闹铃功能，并配备两个动力储存指示器。時計于 1946 年由瑞士政府呈献给埃及国王法鲁克一世，比其父珍藏的怀表更加精妙复杂。

❖ **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.

❖ **法国盖•德•波伊斯洛夫雷伯爵（1948 年）**

此枚大尺寸 18K 金质猎装怀表具备采用三音簧三音锤结构的三问报时功能、带闰年显示的万年历及月相显示功能、单计时盘双秒追针计时功能，以及闹铃功能。怀表于 1948 年售予法国盖•德•波伊斯洛夫雷伯爵。

❖ **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.

❖ **参考编号 57260（2015 年）**

参考编号 57260 历经八年研发而成，以完全原创的新颖巧思，超乎想象地将 57 项复杂功能集于一身，其中更有七项前所未有的钟表功能，包括品牌首创的希伯来万年历功能，堪称是高级制表的集大成之作。

VIII.- Complications List

VIII.- 复杂功能列表

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

时间功能 (9)

1. 平太阳时规范指针式时针、分针和秒针
2. 平太阳时逆跳秒针
3. 设定城市昼夜显示
4. 透过表盘可见的球形浑天仪式陀飞轮调节器，球形摆轮游丝
5. 球形浑天仪式陀飞轮
6. 全球 24 个城市世界时间显示
7. 12 小时制第二时区小时及分钟显示
8. 第二时区昼夜显示
9. 南/北半球第二时区位置显示系统

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)

格里高利万年历功能 (7)

10. 格里高利万年历
11. 格里高利星期
12. 格里高利月份
13. 格里高利逆跳日期
14. 闰年显示及四年周期
15. 一周日数 (国际标准 ISO 8601 日历)
16. 年度周数显示 (国际标准 ISO 8601 日历)

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

中华万年历功能 (11)

17. 中华万年历
18. 中国农历月份日数
19. 中国农历月份名称
20. 中国农历日期显示
21. 中国农历生肖
22. 五运与十天干
23. 六气与十二地支
24. 中国农历年份类别 (平年/闰年)
25. 中国农历月份类别 (大月/小月)
26. 19年默冬周期金数显示
27. 中国农历新年日期在格里高利历中的显示

Chinese Agricultural Perpetual Calendar (2)

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

中华农历万年历功能 (2)

28. 中华农历万年历
29. 太阳指针指示季节、春秋二分点和冬夏二至点

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

天文功能显示 (9)

30. 星空图 (按上海设定)
31. 恒星时小时
32. 恒星时分钟
33. 日出时间 (按上海设定)
34. 日落时间 (按上海设定)
35. 时间等式
36. 白昼时长 (按上海设定)

37. 夜晚时长（按上海设定）
38. 月相及月龄，每 1,027 年仅需调校一次

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

追针计时功能（4）

39. 五分之一秒计时功能 - 1 个导柱轮
40. 五分之一秒追针计时功能 - 1 个导柱轮
41. 12 小时计时盘 - 1 个导柱轮
42. 60 分钟计时盘

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

闹铃功能（7）

43. 单音簧和音锤报时闹铃
44. 闹铃报时/静音指示器
45. 常规闹铃或钟声报时闹铃选择指示器
46. 与钟声报时机制连接的闹铃机制
47. 可选择大自鸣或小自鸣的闹铃报时功能
48. 闹铃动力储存显示
49. 上满链时脱离式闹铃发条盒

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

西敏寺钟声报时功能（8）

50. 5 音簧和 5 音锤西敏寺钟声乐音
51. 大自鸣报时
52. 小自鸣报时
53. 三问报时
54. 夜间静音功能（晚上 10 时至早上 8 时之间 – 根据拥有者选择定制）
55. 上满链时脱离式报时发条盒

56. 大自鸣或小自鸣模式指示
57. 静音/报时/夜间模式指示

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

其他功能 (6)

58. 运转轮系动力储存显示
59. 报时轮系动力储存显示
60. 上链表冠位置指示
61. 双发条盒上链系统
62. 双位置和双方向手动设定系统
63. 闹铃机制的隐藏式上链旋钮表冠

IX. - Technical Data

IX. -技术规格

LES CABINOTIERS THE BERKLEY GRAND COMPLICATION Les Cabinotiers 阁楼工匠 The Berkley 超卓复杂功能怀表

Reference	9901C/000G-B472 Hallmark of Geneva certified timepiece
型号	9901C/000G-B472 经日内瓦印记认证的时计
Calibre	3752 Developed and manufactured by Vacheron Constantin
机芯	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 3752 江诗丹顿自行研发并制造 手动上链机械机芯 直径72毫米（31½法分），厚度36毫米 动力储存约60小时 振动频率2.5赫兹（每小时18,000次） 2,877个零件 245颗宝石
Caliber plates	Plate 152: Chronograph Plate 252: Gregorian perpetual calendar Plate 352: Chronograph & Chinese perpetual calendar Plate 552: Astronomical indications
机芯夹板	夹板152：计时 夹板252：格里高利万年历 夹板352：计时及中华万年历 夹板552：天文功能显示
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

显示功能	Additional features 时间功能 万年历功能：格里高利历和中国农历 中华农历万年历功能 天文功能显示 追针计时（3个导柱轮）功能 闹铃功能 西敏寺钟声报时功能 其他功能
Case	18K white gold 98 mm in diameter, 50.55 mm thick
表壳	18K白金 直径98毫米，厚度50.55毫米
Dial	Metal Opaline silver-toned
表盘	金属 乳光银色
Number of hands	Front: 19 / back: 12
指针数量	正面：19枚；背面：12枚
Accessories	Delivered with a corrector pen & a magnifying glass
配件	配有一支校正笔和一枚放大镜
Additional Information	Single-piece edition, crafted on demand
其他信息	Total weight: 980gr 独一无二的特别定制款 总重量980克