

André-Charles Caron—A Watch Maker’s Shop (*boutique d’horloger*) on rue Saint-Denis, Paris, Circa 1750

By Robert St-Louis (CAN)

“The love of such a beautiful profession must enter your heart, and solely occupy your spirit.”—André-Charles Caron, to his son Pierre-Auguste (around 1750)

Introduction

In 2018, the author acquired a verge-fusee watch from an online seller in France, described as an “old watch for parts.” The movement is signed “Caron à Paris” and has the serial number 1244 inscribed (Figure 1). It was made around 1750, and has provided the author with the opportunity and desire to research the facts about its maker, resulting in diverse and interesting information about his life and times in Paris in the mid-1700s, which forms the basis of this article. Until now, very little has been written about André-Charles Caron (other than references and footnotes in several biographies of his illustrious son), and the author hopes that this article, which is the fruit of many hours of research and compilation, will bring this man out from the shadows of oblivion and neglect, and help him take a rightful place in the history of 18th century Parisian watch-making.

The article will also discuss Caron’s son, Pierre-Auguste, who briefly followed in his father’s footsteps before venturing out into one of the most fascinating lives of that eventful century, and will also reveal a famous worker in his *atelier* “shop,” Jean-Antoine Lépine, who was to revolutionize watch design in the later part of the century. Because Caron exercised his profession in France and made both clocks and watches, we will refer to him throughout this article as an *horloger*, which is the French term representing both a clock maker and a watch maker.

Origins and Biographical Summary

André-Charles Caron was born on April 26, 1698, in Lizy-sur-Ourcq, a

small farming and commercial center, largely Protestant and of some importance, located on the Ourcq river near Meaux in France, about 30 km east of Paris. His father Daniel, a Calvinist, was also an horloger, and he and his wife Marie had 14 children, of which many died at a young age. André-Charles was the fourth child, raised in a rather poor family due to their religion, as we shall see. Nothing is known of the childhood or education of André-Charles. His father died when he was barely 10, so if he learned the rudiments of horology in his hometown, it would have had to be from another horloger, possibly an uncle or cousin.

King Henry IV of France had signed the Edict of Nantes in 1598 to promote civil unity between Catholics and Protestants, in a largely Catholic country. The Edict also provided substantial rights to Protestants in France (also known as Huguenots), and marked the end of the religious wars that had plagued France during the latter half of the 16th century. The Edict was revoked by King Louis XIV in 1685, resulting in the exodus of many

Huguenots from France to other countries,^A and the persecution of those who either chose, or were forced, to stay in France; their legal existence was refused, their marriages and children were considered illegitimate, and they were often prevented from working at a trade.

For these reasons, it is understandable that once he came of age, André-Charles would seek opportunities outside his small birthplace. Alone or with the help of others, he hatched and executed a logical plan. First, he joined a cavalry regiment while in his early 20s, which he left in early 1721 and settled in Paris. Soon after, he did what many Protestants were compelled to do: officially renounce his Calvinist religion and join the Roman Catholic Church. To do so, he



Figure 1. A view of the balance-cock side of the watch movement no. 1244 by André Charles Caron, circa 1750. Author’s collection.

submitted a letter to the authorities in which he wrote, “On March 7, 1721, I have pronounced my abjuration of the heresy of Calvin in Paris, in the Church of the New-Catholics. Signed: André-Charles Caron.” This letter was accompanied by a certificate from Cardinal Louis-Antoine de Noailles, the archbishop of Paris from 1695 to 1729. It is not known how a recent Protestant arriving in the capital could have established contact with the Catholic archbishop, but in a document from 1722, it is indicated that André-Charles had been, “instructed by the care and charity of the archbishop of Noailles.” Clearly, this was a young man (whose own son would demonstrate similar qualities 30 years later) who was resourceful, intelligent, a good communicator, and possessed a sympathetic nature that would endear him to persons of authority and influence.

All his life, the converted Caron and his family were devout Catholics. However, André-Charles always retained some of the characteristics of his Protestant upbringing (sternness, discipline, sense of justice and fairness, attention to detail and quality) which were to serve him well in his professional life, and also in raising a bright son who was driven by conflicting impulses and desires, as we shall see.

The following year, in 1722, André-Charles addressed a letter to the King’s state council (including a document attesting to his status as a new Catholic) asking to be accepted as a *maître horloger* (master watch maker^B). Caron was successfully accepted and in the written decision in his favor, issued in February 1722, it was stated that Caron had “learned the trade at Sieur Foullé, most able master in this city.” This is probably Louis Foullé, who became a master horloger in Paris 1717 and resided on rue Saint-Germain l’Auxerrois (according to Tardy⁴). In addition, the decision document states that Caron had also worked for other horlogers, from whom he provided certificates to accompany his request. This demonstrates that in addition to whatever horological training Caron had received in his home town, he benefitted from excellent learning opportunities in Paris before being admitted to the guild.

André-Charles quickly set up shop on the left bank near what is now called le Quartier Latin in Paris, in the parish of Saint-André des Arcs, where the great French writer and philosopher Voltaire had been baptized in 1694. The opening of his shop indicates that Caron somehow possessed (or was able to borrow) the means to rent appropriate space and equip it with the necessary tools and supplies to start making and selling watches and clocks. He married his first wife, the Parisian Marie-Louise Nicole Pichon, in 1722. They had 10 children, four of whom died in infancy. Their family finally consisted of five daughters^C and a son, Pierre-Auguste, who was born in 1732.



Figure 2. Profile portrait of Pierre Auguste Caron de Beaumarchais. New York Public Library Digital Collection (b12349137) PUBLIC DOMAIN.

Although several portraits exist of his son Pierre-Auguste, no likeness of André-Charles has come down to us. However, he is reported to have shared many of the physical characteristics of his grown son, who is described by his friend Gudin as possessing: “a lofty stature, a slender and elegant figure, regular features, a bright, animated complexion, a confident bearing, an air of command which seemed to raise him above all who surrounded him, and, finally, an involuntary ardor which he exhibited when with others.”(Figure 2)

André-Charles must have excelled at his craft, because a few years after becoming a *maître horloger*, he appears to have been conferred the title of *horloger du Roi* (watch maker to the King) under Louis XV, who ruled from 1715 to 1774. In 1767, according to Beliard,² there were eight horlogers du Roi, in three categories: par charge (four), par brevet (two), and reçu en survivance (two). Some of these horlogers were paid, and served for three months of each year maintaining the King’s watches and clocks. Caron was likely in the second category (par brevet), where the title was conferred by direct royal appointment on merit for actual work as horological supplier to the king. This is confirmed by Louis Courajod,³ who in listing the horlogers du Roi during the period of 1748-1758, indicates that: “Balthazar Martinot & Caron, father of Beaumarchais, provided clocks to the garde-meuble.”

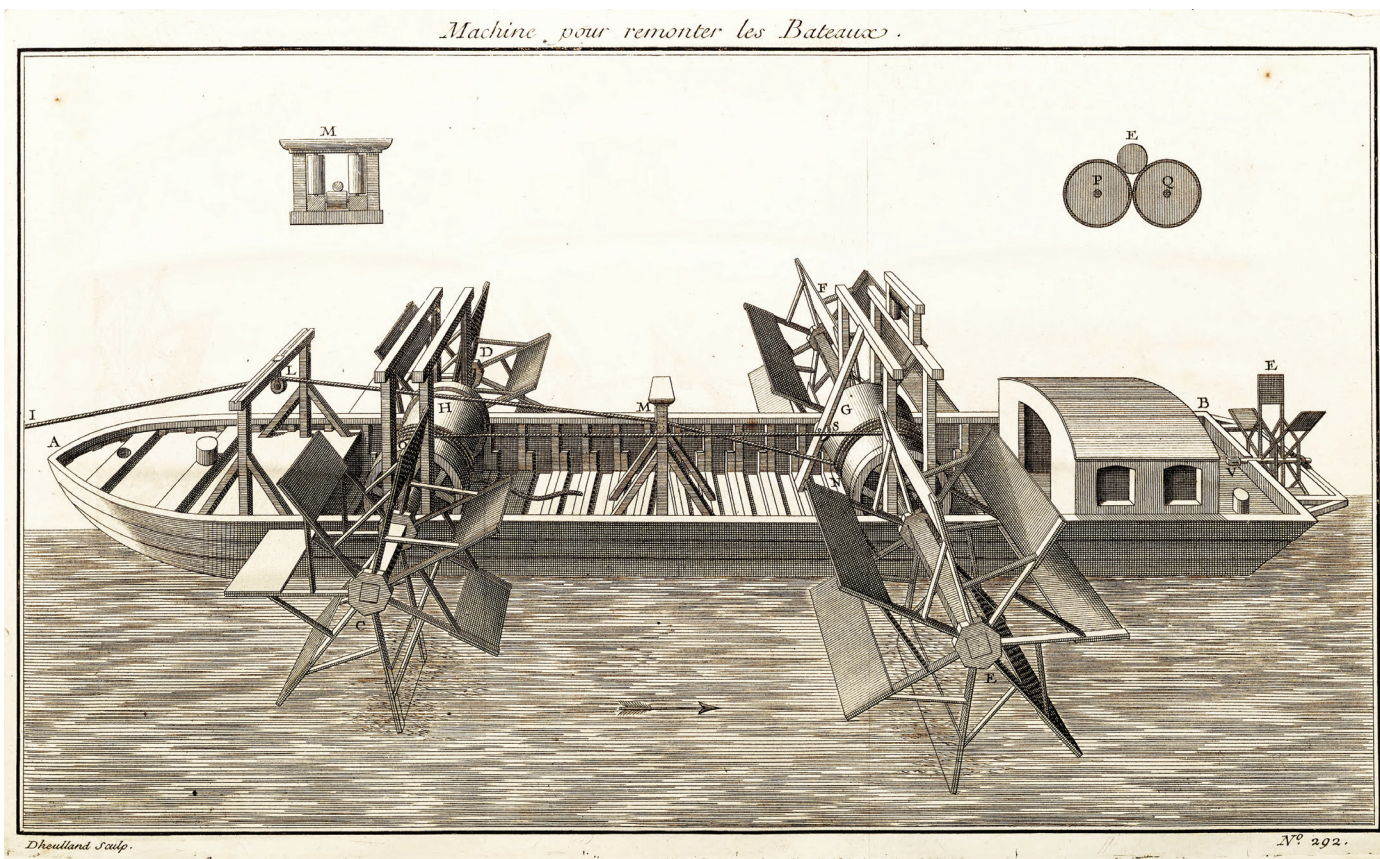


Figure 3. Diagram of “Machine pour remonter les bateaux” submitted by Caron as his invention, to the Académie Royale des Sciences, in 1729. PUBLIC DOMAIN.

The *garde-meuble* referred to the department of the Maison du Roi responsible for the order, upkeep, storage and repair of all the movable furniture and objects in the royal palaces, which included clocks, as these were fixtures in almost every room in a palace.

According to Reinier Plomp,⁴ the titles of *horloger du Roi* could sometimes be sold (as were many of the administrative titles in French society) for considerable sums of money (6,000 to 15,000 livres). There were also possibly some additional horlogers fraudulently calling themselves *horlogers du Roi* for commercial advantage. Given that André-Charles needed to officially renounce his title in front of a notary in 1761, his was clearly legitimate.

Like other watch makers throughout history who invented non-horological machines,^D Caron possessed knowledge in areas beyond watch-making and a keen mind drawn to mechanical invention. Between 1726 and 1729, he submitted to the Académie Royale des Sciences (the French Royal Science Academy) designs for new hydraulic machines of his invention^E using boats with water wheels and long cables, which served to pull heavy barges carrying all kinds of materials, against the current, to the city of Paris (Figure 3). These sorts of machines remained useful for many years, until the invention of the steam engine in England, later that century, would make

them obsolete. In 1746, Caron is also reported to have written a memoir for the Spanish government describing machines that could be used to dredge ports and rivers.

In 1730, Caron moved his family and his atelier/boutique to rue Saint-Denis, on the other side of the Seine, in the neighborhood now called Le Marais in Paris, where he lived and worked for over 30 years. Although André-Charles Caron would not have been a wealthy man, a Parisian horloger typically lived a comfortable life typical of the “little bourgeoisie” of that era. By all accounts, the Caron household was a lively one, as all members of the family were reasonably well-schooled and interested in literature, theatre, and music. In the evenings, Pierre-Auguste and his sisters would often put on plays or make music together to entertain their parents and themselves, as was commonly done in reasonably well-to-do middle-class families in Paris at that time.^F

Watch-Making in Paris in the Mid-18th Century

The presence in and around Paris of numerous members of royalty and aristocracy and of the countless professionals and senior officials administering the affairs of the nation, ensured the livelihood of trades providing luxury items for these upper layers of society. Such tradesmen included goldsmiths, silversmiths,

tire-makers, dress-makers, tailors, and jewelers. Makers of clocks and watches (horlogers) also thrived in this cosmopolitan city, the center of power for the French Empire. Although watch-making centers existed in other parts of France (e.g., Blois, Lyon, and Toulouse), it was Paris (like London in England) that was the hub of watch-making and retailing activities.

The history of watch-making in France goes back to the 16th century (before then, clocks had been made for at least 200 years).⁵ At that time Blois was the center of such activities because it was home to the courts of Francois I, Charles IX, and Henry III. The trade was also established in Paris, where a guild was formed in 1544 and signed by François I, later revised in 1600 and 1646. Watches were constructed with a verge escapement, and driven by a mainspring regulated by a fusee, first using catgut and then fine chains. They were generally highly decorated and engraved, often embellished with diamonds and precious stones, and were rather spherical in size, referred to as “onions.” After Christiaan Huygens’s invention of the balance hairspring, first built for him by the Parisian horloger Isaac Thuret in 1675, watches became more accurate, a minute hand was introduced, and rather than being almost solely decorative objects for the wealthy, they started on the evolutionary path to become reliable timekeepers for a broader range of owners.

As mentioned earlier, the decision by Louis XIV to revoke the Edict of Nantes in 1685 greatly affected the progress and capabilities of French watch-making, because many horlogers were Protestant, and either could no longer legally practice their trade, or were compelled (along with many of their workers) to seek employment in other countries, notably England, Germany, and the Jura region of Switzerland. Almost overnight, the previously highly regarded French watch-making community fell into decline. England, which had produced a respected watch trade for many decades, quickly became the dominant watchmaking nation in Europe, under the leadership of outstanding men like Edward East, Thomas Tompion, Daniel Quare, George Graham, John Harrison, and many others. English watchmaking would reign supreme in Europe for almost 200 years, until it was supplanted by the Swiss and American watch industries.

Authorities in France realized the need to do something to shore up their failing industry, and managed to entice

some English watch makers to come and train a new generation of horlogers. A school was briefly established at Versailles under Henry Sully, an Englishman who had previously worked with Quare and Isaac Newton in London. Sully became friends with Julien Le Roy (Figure 4), a Parisian horloger who established himself as the greatest watch maker of his era, in the first half of the 18th century.⁶ Le Roy left a legacy of new watch designs, trained many horlogers who carried on his tradition of watch-making excellence with the result that by the middle of the 18th century, France was once again regarded as one of the leading nations in horology, almost but not quite rivaling England’s domination.

It had long been the practice for Parisian horlogers, if they could afford it, to locate their ateliers and stores alongside

those of other luxury craftsmen (e.g., goldsmiths, silversmiths, jewelers) in areas frequented by members of royalty and nobility, and other affluent Parisians, who were always looking to acquire new decorative and luxury objects to show off at the next social event, gala, or ball. It must be remembered that during the period of Caron’s career as an horloger, (early to mid-18th century) the majority of watches were still essentially luxury items, worn for status or even just decoration. Although more modest watches in plain silver cases aimed at less-affluent buyers were starting to be produced in increasing quantities toward the second half of that century, it is

mostly the very fancy and decorated watches aimed at the upper levels of society that have survived and are now displayed in museums or held in rich private collections.

There were two areas in Paris where one would find the most shops of horlogers in close proximity to each other:

- On the Île de la Cité: Place Dauphine, rue de Harlay, rue Saint-Louis, quai des Orfèvres, and quai de l’Horloge – where generally the most prestigious makers had their establishment (Figure 5), and
- On the right bank of the Seine, in proximity to the Royal Palace, the City Hall, the various government offices, and rich dwellings of the affluent aristocracy and upper class: rue Saint-Denis, rue Saint-Antoine, and rue Saint-Martin.

As was the case in England, the French watch-making trade during the 18th century was based on a division of



Figure 4. Portrait of Julien Le Roy (1686-1759).

PUBLIC DOMAIN.

labor that saw individual watch components (wheels, pinions, plates, springs, screws, fuseses, chains, balance cocks, dials, cases, and hands) manufactured by several distinct external suppliers (as many as 100) that specialized in the production of these individual parts using appropriate tools and skills, often handed down from father to son.⁶

A well-established network existed at that time, which allowed the regular flow of watch parts between areas of France and Switzerland.⁷ For example, during most but especially the latter part of the 18th century, it was not uncommon for a Parisian horloger to buy necessary parts (if not a complete “rough movement”) made in the Jura or Neuchâtel regions in Switzerland; assemble, fine-tune, and “finish” these; get a local case maker to craft and fit a gold or silver case for the movement; have the case shipped to Geneva to have a beautiful enamel scene painted on it (possibly enhanced with precious stones); and then have the case shipped back to Paris where it was re-mated with the movement and sold in the store

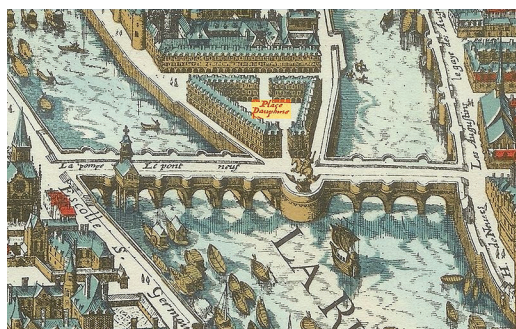


Figure 5. Engraving of Place Dauphine on Ile de la Cité in Paris. PUBLIC DOMAIN.

to a discriminating and affluent customer.

Thus it was unlikely that the majority of the clocks and watches produced in a shop such as Caron’s were actually made entirely within that shop, even though the horlogers employed there, including Caron himself, were probably more than able to do so. It made more economic sense to buy some or most of the components already made

and use the skills of the horloger to “finish” the watch: assemble and fine-tune its components, ensure proper meshing of wheels and pinions, adjust the escapement and hairspring, and fit it to a dial and case.

Although more sophisticated machines were becoming available at that time to make some of the components, these may not have been present in every watch maker’s shop, some being used predominantly by specialist component makers who sold their parts to the horloger (fusee cone, wheels, mainsprings)(Figure 6). Ultimately, it was the *mâitre-horloger’s* responsibility to ensure

Various tools available to watchmakers (source: Encyclopédie Diderot 1751-1772)

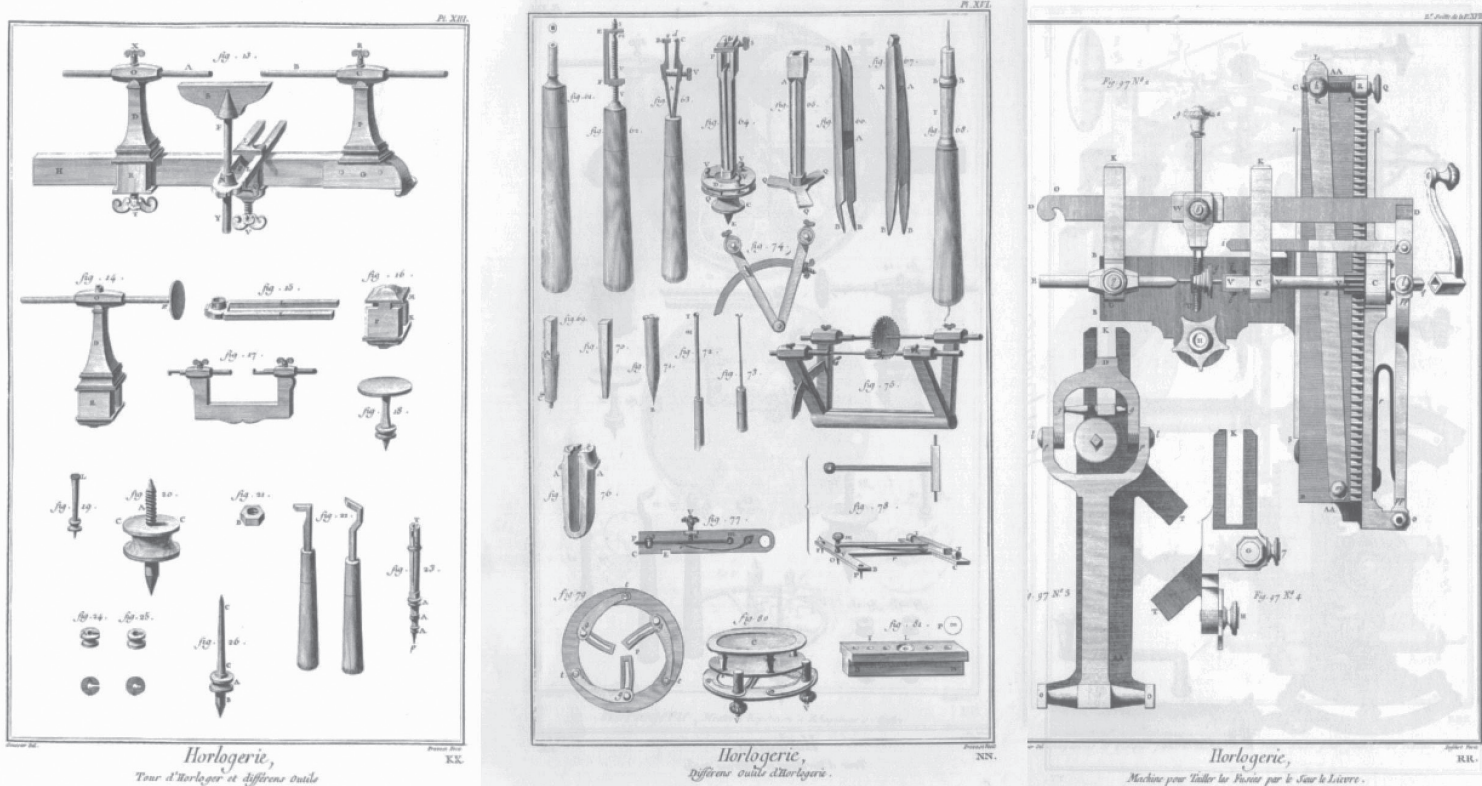


Figure 6. Some of the tools available to horlogers around 1750. From Diderot’s Encyclopedia. PUBLIC DOMAIN.

the quality of the watch once it was fully assembled and running properly, and his name inscribed on the watch movement and/or the dial would serve as his pledge of guarantee to the prospective owner.

From a technology perspective, watches had remained largely unchanged for almost two centuries. As previously mentioned, they still mostly used a verge escapement that made the watches substantially thicker than the ones that were to follow Lépine's innovations some decades later. They were still fitted with a fusee and chain, which moderated the variable force exerted by the mainsprings of the time. The balance hairspring introduced by Huygens in 1675 made verge watches more accurate (within a minute or two a day) and eventually, progress in design and execution allowed verge watches to become somewhat smaller in diameter and thickness (Figure 7).

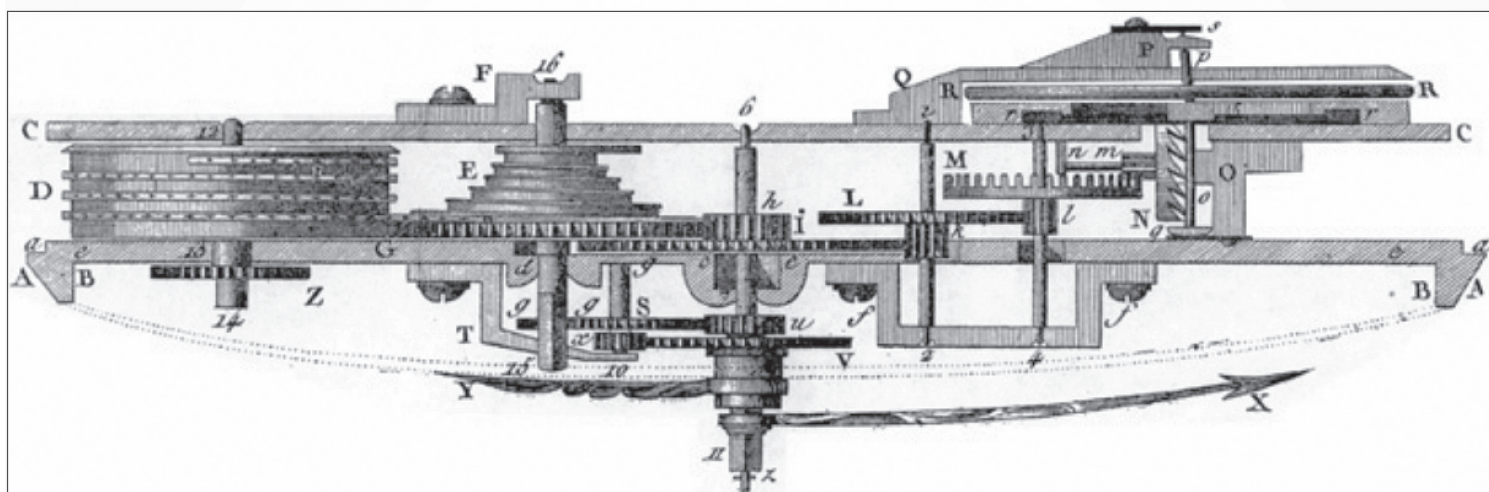
In the late 17th century, Englishmen Barlow and Quare independently developed a repeating mechanism, which allowed the wearer to be reminded of the time at the press of a button, even when the watch was in a pocket or on a dark bedside table. The repeating mechanism was positioned between the bottom plate and the dial, and even though it further augmented the thickness of the watch, it was a popular feature that was often included

in more prestigious watches in the 18th century, both in England and on the Continent.¹⁴

Many 18th-century horlogers in France, England, and to a lesser degree Switzerland, were experimenting with other types of escapements to further improve the accuracy of timepieces. The desire to develop an accurate marine chronometer (to accurately measure longitude, a critical issue for marine navigation) was a strong driver in this area. Several interesting and sometimes curious escapements were developed during that period, some of them practical and others less so, including the virgule, double-virgule, cylinder, and duplex varieties. Eventually the lever escapement was to reign supreme.

Although it is not known if André-Charles Caron himself experimented with the development of different escapements or similar innovations in watch-making, he was known as a mechanical inventor in river machines, as discussed above. However, two other horlogers who were working in Caron's atelier around 1750 certainly did experiment and innovate in these areas. One of them, his own son Pierre-Auguste, was to develop a new escapement, the *double-virgule*, and built some of the most talked about watches at that time. This brought him to the attention of the public and especially of the King

Typical verge-fusée watch from around 1680 to mid 1800's



C, G – top and bottom plates
 D – mainspring barrel & chain
 E – fusée
 M – contrate wheel
 Y, X – hands

Q – balance wheel cock
 R – balance wheel
 O – potence
 N – escape (crown) wheel
 o-p – verge

Figure 7. Cross-section diagram by Berthoud of a typical verge-fusée watch from 18th century. PUBLIC DOMAIN.

and his entourage (this will be discussed in the second part of this article, in a future issue of the *Watch & Clock Bulletin*).

The other watch maker in Caron's shop, Jean-Antoine Lépine, more will be said about him later, was to become one of the great innovators in the history of horology.⁸ A few years after Caron had left him the business, Lépine introduced many novel watch designs which did away with one of the plates of the traditional watch and replaced it with individual bridges, eliminated the need for a fusee by using a going mainspring barrel, and used new escapements of the virgule and cylinder varieties (Figure 8). These pioneering designs would initially have been built in-house, as they were very different from the usual verge-fusee watches produced until then, and for which parts were readily available from suppliers. Eventually the usual parts suppliers (largely in Switzerland) caught up with the advancing designs of Lépine, and were able to produce the parts, if not entire movements, for these new watch configurations. Many of Lépine's inventions were to have a lasting influence on watch-making practices and designs.

A year before he retired in 1761, André-Charles is reputed to have invented the skeleton movement (where plates are carved out to reveal the wheels and other components underneath them), persuaded that some of his clients would like to see how a watch worked. His future successor Lépine also produced several skeletonized watches in succeeding years. This was to be Caron's final accomplishment as an horloger, and introduced a style and technique that has been widely used to this day.

La boutique d'horloger on Rue Saint-Denis

In 1730, as previously indicated, Caron moved his *boutique d'horloger* to rue Saint-Denis in Paris, where he was to exercise his profession for the remainder of his working life. This location was conveniently close to the Seine River on the right bank, and a short walk or carriage ride to the Île de la Cité and to opulent palaces and government buildings, where most affluent clients resided or transacted business (Figure 9). The shop was likely on the ground floor of one of the two buildings in the center

of Figure 10, facing the rue Saint-Denis, whichever one provided the most suitable daylight needed for the work of the horlogers. It is not certain whether Caron's family resided in the same building, in an apartment above the shop, or at another location nearby. In a notarized document dated March 8, 1730, André-Charles indicated that he lived in rue des Lavandières, just a short walk from the intersection of Saint-Denis and de la Ferronnerie, where he had his atelier.

Little is known about how large Caron's atelier might have been, or how many workers may have been employed there (although his official role of *horloger du Roi* assigned to the *garde-meuble* implies the need for several workers to make and maintain clocks for the royal households). As mentioned before, a typical horloger depended on many external craftsmen to provide parts that would go into a finished watch, so there was no need to have all those specialists under one roof. However, an horloger needed to employ a few fine workers, in addition to himself, to put the important finishing touches on the watches that he would sell, and also to repair the watches that at the time, required frequent oiling and tuning. We do know that by 1750, there would have been at least two men

working alongside André-Charles in his atelier: Jean-Antoine Lépine and Caron's son Pierre-Auguste.

Jean-Antoine Lépine,⁸ who later became one of the most influential and important horlogers in France and whose inventions revolutionized the way watches were built, was born on November 18, 1720, in the small French town Challex, near the border of what is now Switzerland, close to Geneva (Figure 11). He was baptized Jean-Antoine Depigny but later adopted the name Lépine. His father was an horloger who died when his son was only seven, and Lépine was apprenticed with Decroze, a maker of watch movements in Sacconex, near Geneva, who would sell his products to Genevan horlogers for incorporation into their timepieces. In 1744, Lépine relocated to Paris, as did many other aspiring horlogers (and like Caron himself had done 20 years earlier), drawn by the opportunities in the great capital—the most important center of watch-making on the Continent, serving the most lucrative and discriminating clientele.

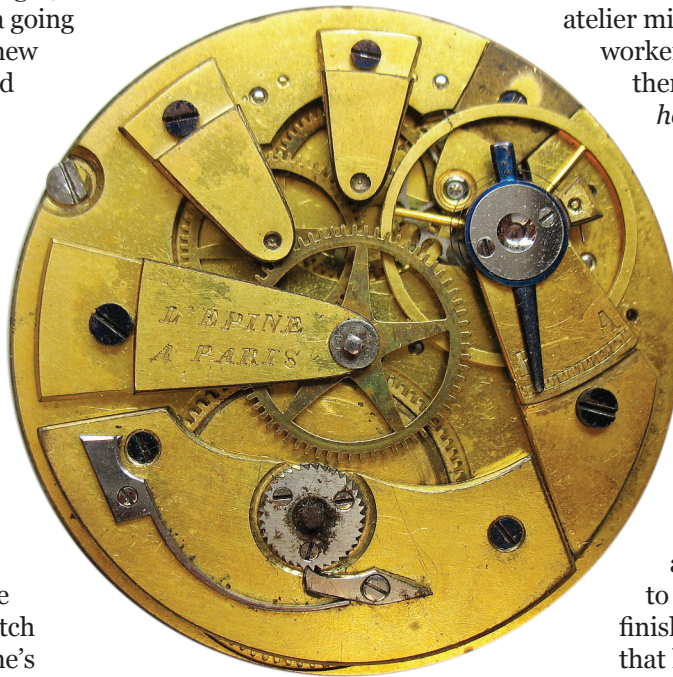


Figure 8. Typical "Lépine caliber" watch movement. Author's collection.

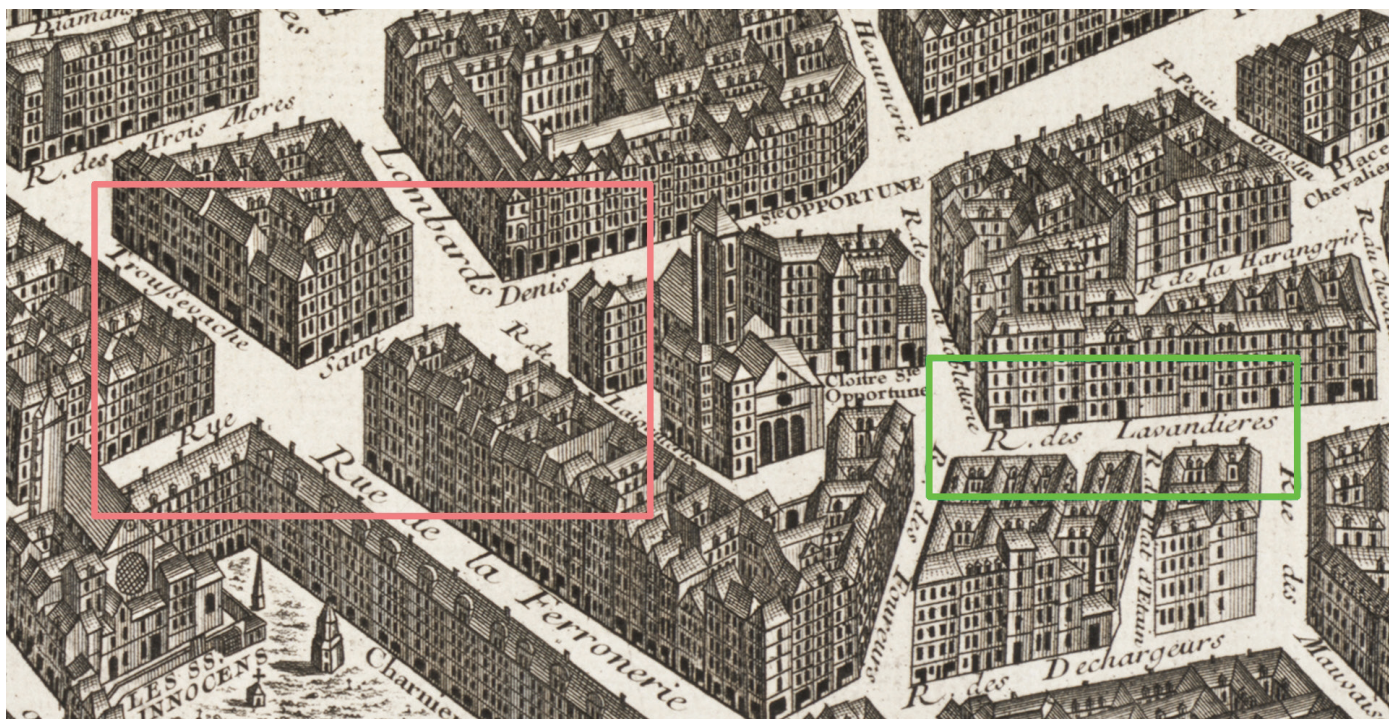


Figure 10. Close-up view of the area enclosed in a red box in Figure 9, from Plan Turgot 1739. Caron's shop was located somewhere in the red box, his family residence somewhere in the green box. PUBLIC DOMAIN.

and later started his own atelier near Place Dauphine, in 1775. This would suggest a possible beneficial overlap of watch-making training and skills acquisition, innovation, and knowledge-sharing, during a most fertile period in French watch-making history, between the three horlogers André-Charles Caron, Jean-Antoine Lépine, and Abraham-Louis Breguet.

The other young man who we know was working in Caron's atelier around 1750 was his own son, Pierre-Auguste, who had started his eight-year apprenticeship with his father in 1745, one year after Lépine had joined the firm. By the end of his apprenticeship, Caron's son was able to create innovative and unusually small watches (presented to the King and his mistress, Mme. De Pompadour) almost entirely by himself (with possible help from other craftsmen in his father's atelier, most notably Lépine). One watch he is reputed to have made for distinguished clients opened up like a flower, and the mechanism was veiled by a delicate "fishnet" of gold and precious stones. Sadly, no watch or clock made by Pierre-Auguste appears to have survived to this day. The interesting trajectory of this young man, who later became known as Beaumarchais, has been described by Paul Chamberlain¹⁰

in *It's About Time*, and an NAWCC article by Charles Aked¹¹ published in 1982.

In addition to André-Charles, Pierre Auguste and Jean-Antoine Lépine, there was at least one other worker in Caron's atelier during that period, named Cartier. He was probably Bernard Cartier, who, according to Tardy,¹ became an horloger in 1764 with a shop at Enclos de l'Abbaye St-Germain in Paris. Cartier is named as an employee of Caron, in the report of the investigation by the Académie des Sciences on the dispute between Jean-André Lepaute and Pierre Auguste Caron, which will be discussed in a later article.

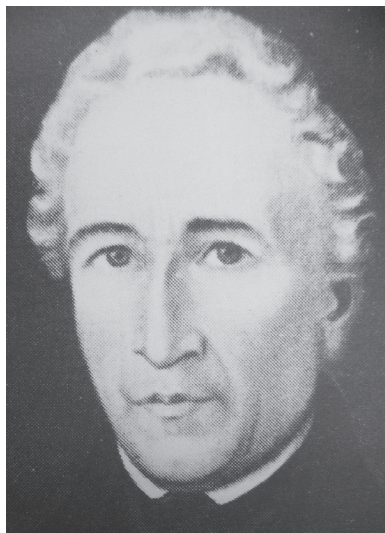


Figure 11. Portrait reputed to be of Jean-Antoine Lépine. PUBLIC DOMAIN.

The engraving in Figure 13, published in 1784, suggests what an atelier like Caron's would have looked like. In this most interesting depiction, we can see on the left two horlogers at work at their bench, either making or repairing watches and other timepieces. They are seated facing tall windows that provided the only source of light available to craftsmen at that time: natural daylight. These windows also allowed passers-by to see the workers busy at their tasks, thus promoting the presence of specialists able to make or repair timepieces. Additionally, in an era where clear and strict rules delineated what each individual guild was able to produce, it ensured that

any passing inspector or interested party was able to verify that an horloger was not working on pieces of watches or clocks that were, for example, made of gold, when this type of work had to be carried out by a member of the goldsmith guild.

In the engraving we also see a nobleman (distinguished by his dress, the fact that he is wearing a sword, and that his valet and coach are waiting for him outside the door). He is standing and discussing with the *maître horloger* (master watch maker), who has gotten up from his own bench to confer with his esteemed customer. The nobleman appears to be looking at a watch presented to him by the master, which he may be considering for purchase. On the benches, we see several hand tools, vises, and small bow-driven lathes called “turns,” available to horlogers at the time. We also see watches hanging from the windows, probably to ascertain their timekeeping abilities following construction or repair, but also to showcase them to passers-by and prospective customers.

In looking at this engraving, one could imagine it representing André-Charles standing and speaking to a rich client, Jean-Antoine at work near the door, and young Pierre-Auguste on the bench closest to the viewer. Working side by side with two accomplished horlogers during his formative years, benefiting from their able guidance and instruction on all aspects of watch-making, finishing, and repair, Pierre-Auguste was certainly predisposed to become a capable horloger in his own right, which is what happened. Additionally, the young man was undoubtedly impressed and inspired by the noble and affluent men and women coming into his father’s atelier to purchase timepieces or have them serviced or repaired, and he probably harbored a secret wish to one day become like them. This desire was to have serious consequences on the manner in which he ended up charting his path through life when, in 1755, he turned his back on horology forever. In Part 2 of this article, we shall turn to the fascinating story of André-Charles Caron’s son.

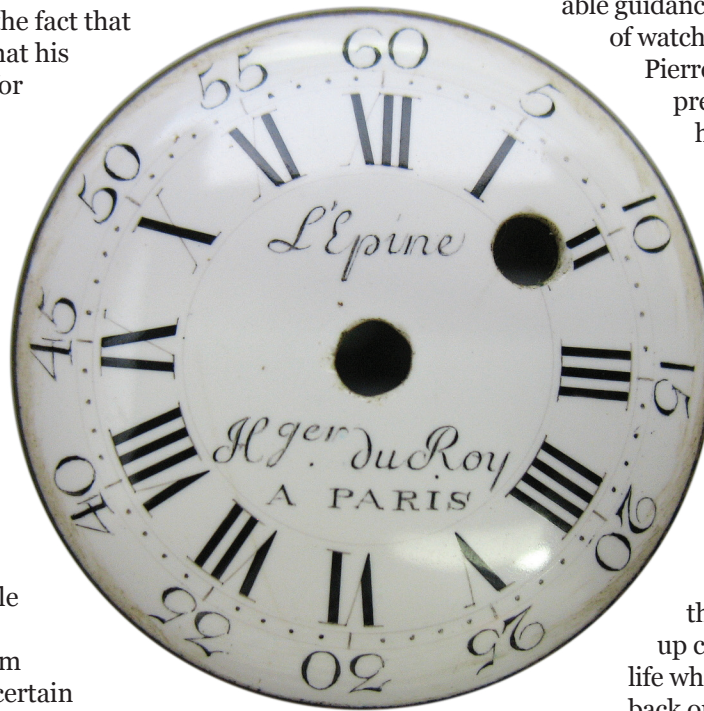


Figure 12. Watch dial signed “Lépine, Horloger du Roy” circa 1770. Author’s collection.



Figure 13. Engraving of the interior of a watch maker’s shop circa 1784, from Panckoucke’s Encyclopédie Méthodique. PUBLIC DOMAIN.

Endnotes

- A. Out of a Protestant population of 800,000, it is estimated that roughly a quarter (200,000) left France following the revocation of the Edict of Nantes. They settled in Protestant-friendly countries (60,000 in Switzerland, 40-50,000 in England, 44,000 in Germany, etc.) where skilled tradesmen (like horlogers) were able to contribute to established manufacturing centers (or in some cases, like the Jura region in Switzerland, eventually create new ones).
- B. This was a way for men who had not completed an apprenticeship in Paris to join the guild of horlogers, as membership was strictly controlled by Patent Letters dating back to 1544 (similar to the Worshipful Company of Clockmakers' Royal Charter in 1641, in London). It was also a way for the King to raise money for his various endeavors and lavish lifestyle expenditures without resorting to unpopular tax increases, by collecting member dues from new tradesmen accepted in the various guilds.
- C. The two oldest daughters, Marie-Josèphe and Marie-Louise, retreated to a convent after the former became widowed in Spain, and the latter suffered romantic hardships while accompanying her in that country. Marie-Françoise was the middle daughter and married the successful horloger Jean-Antoine Lépine. The youngest was Jeanne-Marguerite, pretty and popular in the social salons, married to a lawyer named Miron, but sadly died young. The fourth daughter, Marie-Julie, never married, remained close and supportive to her famous brother Beaumarchais, and wrote elegant books on religious thoughts near the end of her life - she died one year before her brother.
- D. Famous examples (see article by Mitman) include: James Watt (condenser for steam engines); Matthias Baldwin (steam locomotive); Elias Howe (sewing machine); Ottmar Mergenthaler (linotype machine); and Henry Ford (who kept repairing watches as a hobby, while he oversaw his car-making empire).
- E. An article by historian Antonetti (1985) makes a very convincing argument that the true inventor of these naval machines was named Tavernier de Boullongne, who had worked on these designs since 1704, and finally succeeded in getting them approved for implementation around 1730. It appears that Caron saw an opportunity, between 1726-29, to copy Tavernier's design, and borrowed money to implement a competing product, which was unsuccessful. This unfortunate venture essentially made him seek bankruptcy protection in 1730, whereupon his creditors gave him 12 years to pay them back.
- F. Useful details about the family household are contained in the various biographies (notably Loménie's) of Caron's famous son, that were written in the decades after his death. These include numerous letters between Caron and his son, which not only attest to the loving and supportive relationship they always held, but also that André-Charles was well schooled and had evident literary skills.
- G. Le Roy was regarded by Frenchmen as having reestablished national pride and confidence in its watch-making abilities, through his influential innovations and sought-after timepieces. When he died in 1759 at the age of 73, there was a long procession following his funeral cortege in the streets of Paris, including many of his employees in tears (André-Charles Caron and many of his employees were no doubt in the procession).
- H. The watch by Caron that initiated this article was originally fitted with such a repeating mechanism, but it unfortunately was removed sometime in the distant past.

Acknowledgments

The author wishes to thank the many contributors on the following forums who provided insights into his Caron watch, and on related subjects: NAWCC—European & Other Pocket Watches; Forum à Montres (France)—discussions sur les montres de poche.

References

1. Tardy. Dictionnaire des horlogers français, Paris.
2. Beliard. Réflexions sur L'horlogerie en général, et sur les horlogers du roi en particulier, Paris, 1767.
3. Courajod, Louis, Livre-Journal de Lazare Duvaux 1748-1758, Paris, 1873: CXVII-CXIX.
4. Plomp R. Early French Pendulum Clocks, Schiedam, 2009.
5. Baillie, GH. Watches, their history decoration and mechanism, London, 1929.
6. Weiss L. Watchmaking in England 1760-1820, Hale: London.
7. Dequidt M-A. La qualité *de l'horlogerie commune à Paris, à la fin du XVIIIe siècle*. Histoire et Mesure, 2012:137-164.
8. Chapiro A. Jean-Antoine Lépine, horloger (1720-1814). Paris: Les Éditions de l'amateur, 1988.
9. Chapiro A. La Montre française du XVIème siècle jusqu'à 1900. Paris: Les Éditions de l'amateur, 1996.

- 10. Chamberlain P. *It's About Time*. Holland Press. 1941 (this book also features a biographical summary of Beaumarchais on pp. 349–353).
- 11. Aked C. Beaumarchais. *NAWCC Bulletin* 1982;220 (October)519–528.

Loménie L. Beaumarchais et son temps (2 volumes), 3rd Edition, Paris, 1873.

Mitman C. Watchmakers and Inventors, *The Scientific Monthly*, July 1927: 58-64. <https://www.lowtechmagazine.com/2010/11/boat-mills-bridge-mills-and-hanging-mills.html>

Bibliography

Antonetti G. Tavernier de Boullongne, le père de Beaumarchais, et la machine à remonter les bateaux sur la Seine, *Bulletin de la Société de l'histoire de Paris et de l'Île de France*, 1985.

Dequidt M-A. *Implantation, transport et finances. Histoire Urbaine* 2008(December):169–184.

Diderot D. *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*, Paris, 1751-1772.

Franklin A. *La vie privée d'autrefois: La mesure du temps*, Paris, 1888.

Jacquet E, Chapuis A. *Technique and History of the Swiss Watch*. New York: Spring Books, 1970.

Jal A. *Dictionnaire critique de biographie et d'histoire*, Paris, 1872: 147-151.

About the Author

Robert St-Louis developed an interest in horology some years ago, after his retirement from a long career in public service. In his thirst for knowledge, he has acquired much information from books, internet sources (such as NAWCC discussion forums), and back-issues of horological publications (such as the NAWCC Bulletin). He has also acquired some tools, as well as specimens of clocks and watches, and is trying to learn some repair and restoration skills. His interests have gradually coalesced on Parisian watch-makers from the 18th century. He enjoys researching and writing on this subject, and sharing some of his knowledge with other enthusiasts. Robert is an active participant in NAWCC Chapter 111 in Ottawa, and can be reached at rsl9999@gmail.com.

2019 NAWCC WORKSHOPS

Contact education@nawcc.org.
Phone: 717.684.8261, ext. 237. Fax: 717.684.0878.

Check out www.nawcc.org for the latest workshop schedule as new workshops will continue to be added. Sign up early and receive the Early Bird Registration Discount!

- Using a Micro Mill for the Beginner: WS-120
..... June 22 – June 23
- Using a Jeweler's Lathe I: WS-135
..... July 12 – July 14
- Staffing and Jeweling: WS-410
..... August 16 – August 18
- Servicing a Pocket Watch for the Beginner I: WS-111
..... September 7 – September 8
- Using a Micro Lathe for the Beginner: WS-117
..... September 21 – September 22

- Servicing a Pocket Watch for the Beginner II: WS-201
..... October 4 – October 6
- Hairspring Adjustment: WS-401
..... October 18 – October 20
- Understanding the Fundamentals of
Clocks for Valuation: WS-800 October 19 - October 24
- Servicing a Pocket Watch for the Beginner I: WS-111
..... October 26 – October 27
- Servicing a Pocket Watch for the Beginner II: WS-201
..... November 15 – November 17

See the education section of www.nawcc.org for more information about these and other courses being offered throughout the year.