

Carriage Clock Dials

A Close and Careful Look

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In an April 2004 BULLETIN article, Doug Cowan provided an excellent introduction to carriage clocks—those portable spring-driven timekeepers with platform-mounted balance wheel escapements—and I wrote about the many features found on just the top surfaces of these interesting *pendules de voyage*.¹ In this article I look at the decorative or aesthetic variations found on carriage clock dials. My objective is to help collectors and students of horology perceive and appreciate how these dials express individuality. The dial is the clock's face and, like the faces of people, dials have many characteristics that make them unique and distinctive. Sometimes it takes a close and careful look to fully recognize what is there. In short, this article aims to help us view carriage clock dials in a more discerning and studied manner.

What Is a Dial?

Before we tackle the many aspects of carriage clock dials, let's define a dial. What some people call a clock dial is really the entire front panel of the clock, often termed the dial plate. But dials and dial plates are not always the same. The dictionary defines a dial as the graduated face of a timepiece on which pointers or hands are used to show hours, minutes, and seconds. Dials also are used to show other measures such as days of the week or phases of the moon. Therefore, some dial plates contain more than one dial. Consider the clock in Figure 1 by an unnamed French maker. Its large dial with 12 Arabic numbers shows hours and minutes with two hands. Below that is a separate smaller dial with one hand marking an alarm setting. The dial plate containing these two dials is covered by a silvered surface called a dial mask, a third component on this clock's front panel. Now contrast this with the clock in Figure 2. Its entire front panel is a white porcelain surface containing nothing but the hour ring and hands. Here the dial plate and the dial are essentially the same. In this article we first focus on features of the dial (or dials) on a carriage clock dial plate and then take note of other components that are not dials but often appear on the front panel of carriage clocks.

Components and Features of Carriage Clock Dials

The dial elements discussed here are found on most types of clocks, not just carriage clocks. But the examples and illustrations involve carriage clocks exclusively, including nineteenth-century French, English, Swiss, and American clocks accessible to the author. Most of these features and variations are pictured, but for

Figure 1, top. French, unnamed maker, numbered 1937, 2-1/4" dial diameter (3" dial plate width), strikes and repeats, circa 1890.

Figure 2, right. American, Boston Clock Company Cyprus model, numbered D76, 2-1/8" dial diameter (2-3/4" dial plate width), strikes, circa 1890.



those not shown, references are provided ([L] for lot number and [F] for figure number) to examples in publications noted at the end of this article. (References are available in the Library and Research Center.)

Main Dial Overall

Size. The clock's main dial contains the hour ring and related indicators, such as a band of minute markers with or without numerals at the outer edge of the hour circle. The dial size is the diameter of the disc containing all these components. The caption for each pictured clock notes its main dial size and dial plate width, visible between the side posts or pillars. The size of most dials is related to the overall size of the clock case. But dials of smaller clocks are typically greater in proportion to the total front panel. For instance, the clock with the fancy cast case in Figure 3 is smaller than the clocks in Figures 1 and 2, but its dial occupies nearly the entire width of the front panel. Dial sizes can also differ among clocks that are the same size. Figure 4 is a simple obis-cased timepiece with alarm, and Figure 5 is the Boston carriage clock Queen Anne model. Although both dial plates are the same width, the Queen Anne dial is noticeably smaller. A larger dial size helps us read the time from a distance, and larger dials may allow the use of fancy hands and other deco-

orative touches within the dial—topics we address in the section “Hands in the Main Dial.”

Shape and Dimension. Nearly all carriage clock dials are round, but every pattern has its exception. For example, square dials are found in early twentieth-century carriage clocks with Art Deco cases (JF 60). A rare few carriage clocks contain digital hour and minute display (JF 203), but we do not discuss them in this article. Dial plates are rectangular but occasionally they are square or even oblong (CA 174) to conform to the overall shape of the clock. If the clock's case is round or humpbacked (i.e., with an arched top), the dial plate will match that pattern (DR 253-256). In a dimensional sense most dials are flat, but a few are convex, as in the Duval travel clock in Figure 6. Some flat dials have raised or lowered components within them, however, and these are noted later.

Color and Material. In the mid-nineteenth century, carriage clock production grew substantially, especially in France. Most were relatively simple in design, such as those in Figures 2 and 4, and their dials were predominantly white or off-white enamel. Less common were enamel dials in color, such as red or crimson (ERA L3, L124), blue (ERA L52), or purple (JF 108). Enamel dials of a solid dark color, such as royal blue (e.g., FCC L85) or black (DC F10), sometimes made the

Figure 3, left. French, A. Ecale, numbered 9288, 1-5/8" dial diameter (1-7/8" dial plate width), strikes and repeats, circa 1890. **Figure 4, center.** French, unnamed maker, not numbered, 1-7/8" dial diameter (2-1/4" dial plate width), timepiece, circa 1890. **Figure 5, right.** American, Boston Clock Company Queen Anne model, numbered C3767, 1-5/8" dial diameter (2-1/4" dial plate width), timepiece, circa 1890.



hour numerals and hands difficult to see. Enamel dials with decorative areas of multiple colors, patterns, or scenes offered greater visual interest than solid single colors.

Porcelain was also used as dial material, although porcelain dials almost always contained decorative scenes in and around the dial as shown in Figure 7. In fact, enamel and porcelain dials with scenic or patterned images often appear similar, although they are created by different processes and from different raw materials.² Other dial colors and material found in carriage clocks made for the “upscale” market include silvered and gilt brass (see the silvered dial in Figure 8), pewter, ivory, and glass. The latter, which allowed viewing the clock’s movement at work, was sometimes called a “skeletonized” dial (JF 32). At the end of the nineteenth century and into the early 1900s, many American and German carriage clocks were made with paper dials, an example of which is the carriage-alarm clock in Figure 9.

Location on the Dial Plate. Most carriage clock dials sit slightly above the dial plate middle (e.g., Figure 2), but many variations exist. For clocks with separate auxiliary dials, such as an alarm indicator (Figures 1 and 4), the main dial is more toward the top of the dial plate. In Figure 9 the dial is in the middle of the dial plate, probably to allow for the trademark at the top. Note that this clock has two auxiliary dials incorporated within the main dial. Less common is a main dial in the bottom part of the dial plate, as shown in Figure 10. Above the



Figure 6. French, Duval A Rouen, not numbered, 5" dial diameter and dial plate width, strikes, circa 1775

Figure 7, left. French, Drocourt, numbered 16816, 2-3/8" dial diameter (2-3/4" dial plate width) strikes and repeats, circa 1870. **Figure 8, center.** English, Thomas Cole, not numbered, 2-5/8" dial diameter (2-7/8" dial plate width), strikes, circa 1849. **Figure 9, right.** American, Gilbert “Hello Long Alarm” model, not numbered, 2-3/4" dial diameter (3-1/4" dial plate width) timepiece, circa 1890.



main dial in this large carriage clock is a separate auxiliary dial showing seconds.³

Of course, small differences do occur among carriage clocks in the vertical position of their main dial, although these are seldom noticeable. Only rarely will the main dial not be centered horizontally. For instance, one such clock has two main dials side by side, one with Turkish and the other with Roman numerals (JF 79).

Hour Ring on the Main Dial

The hour ring (also called the chapter ring) contains the circle of numerals that mark the hour of the day. To get some idea of the various treatments of numerals in the hour ring, I surveyed the carriage clocks pictured in three sources. Two were auction catalogs of major French carriage clock sales (FCC, ERA), and the third was a well-illustrated book of examples of some of the best carriage clocks made in France, England, Switzerland, and Austria (JF). In total, pictures of 422 carriage clocks were viewed.⁴ Nearly all of these clocks were from the nineteenth century and would be con-

sidered very desirable to collectors, so this survey does not truly reflect all types of existing carriage clocks in proper proportions. Those produced inexpensively for a broader market are not represented, such as the many carriage clocks made in Germany, the United States, and France during the latter nineteenth and early twentieth centuries.⁵ Certainly a survey of carriage clocks offered on eBay over the past ten years would encompass a less diverse assortment. But my results should reflect a broad range of differences found in carriage clock hour rings because they include many clocks with elaborate designs and aesthetic enhancements reflecting the individual artistry of their makers.

Type of Numerals. Two styles of numerals (chapters) dominate carriage clock hour rings—Roman and Arabic. Roman numerals occur far more often than Arabic, with only a smattering of other types (Turkish and Japanese). Roman numerals were predominant earlier, whereas Arabic numerals became more popular as the nineteenth century progressed.

Positioning of Numerals. Definite patterns occur in positioning. The Roman numerals were all radial, perpendicular to their location in the hour ring curve with their base toward the dial center (e.g., Figures 3, 7, and 10). Thus, at the bottom of the hour ring, the Roman numerals are upside down. On most Arabic hour rings, numerals were positioned horizontally at all points in the curve (e.g., Figures 1, 2, and 4). Only a small portion of the Arabic dials were positioned radially, and in these cases the position of numerals 4 through 8 was inverted, with their base turned toward the dial edge so that they appear right side up (e.g., see the auxiliary dials in Figures 3 and 4). This inversion of radially positioned numerals has been termed “tumbling” by other writers.⁶ Why is this inversion done with Arabic but not with Roman numerals? Possibly it is to make clear that the Arabic 6 at the bottom of the dial is not really a 9 (6 upside down). Perhaps Roman numerals are less confusing when topsy-turvy. I have seen carriage clock dials with Arabic numerals in radial position and not inverted, but I found none in my survey. However, the seconds dial in Figure 10 does show this pattern.

Color of Numerals. Black is by far the most prevalent color in my survey for both Arabic and Roman numerals. Other colors occasionally are gold, blue, white or silver, and red. A color other than black may be used when the dial color itself is dark or the numeral color complements some decoration on the dial plate. Examples of color hour ring numerals include gold (FCC L54), blue (Figure 1; ERA L94), silver (FCC L42), and red (ERA L122).

Size of Numerals. The size of the numerals determines the hour ring width. Tall numerals create a wide hour ring that requires more space in the dial, as in the

Figure 10. French, Berthoud, numbered 24, 3-1/4" dial diameter (4" dial plate width), strikes, circa 1860-1870.

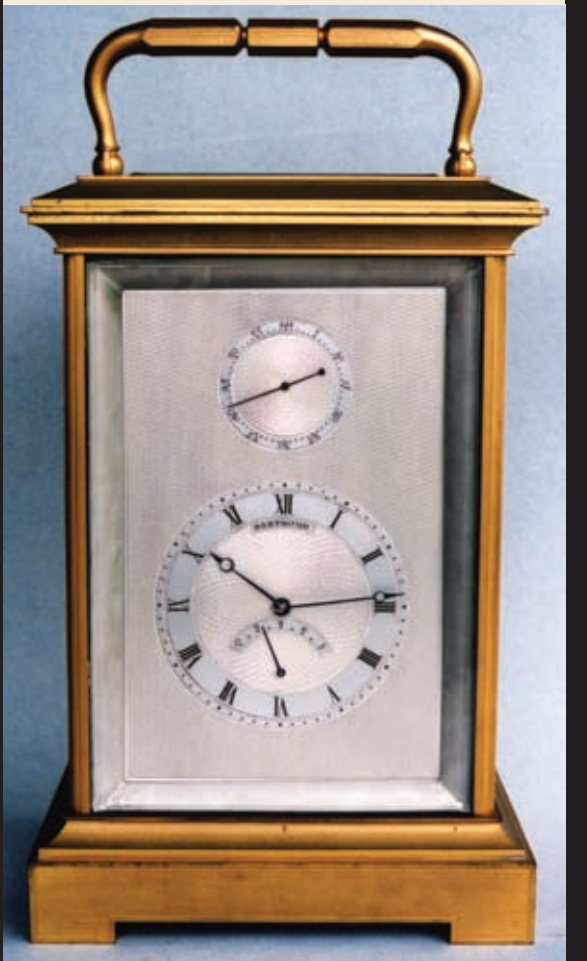




Figure 11, left. French, unnamed maker, not numbered, 1-7/8" dial diameter (2-3/8" dial plate width), timepiece, circa 1890. **Figure 12, center.** English, Dent, numbered 13261, 3-5/8" dial diameter (3-3/4" dial plate width), petite sonnerie, circa 1845. **Figure 13, right.** French, Drocourt, numbered 18555, 2-3/8" dial diameter (2-3/4" dial plate width), grande sonnerie, circa 1860-1870.

French clock in Figure 11. Contrast this with the smaller numerals and narrower hour ring in the English clock hour ring in Figure 12. The Thomas Cole in Figure 8 is also English and has a relatively narrow hour ring, so smaller hour rings may be more typical of English carriage clocks than French. But some French carriage clocks have small hour rings (see JF 65 and 110), so the size of numerals might not always be a clue to country of origin. Perhaps Cole designed his clocks with a large central area in the dial so that an engraving requested by the clock's purchaser could be added, as was likely done for this clock in Figure 8. Alternatively, narrow hour rings might indicate earlier dates of production because the clocks noted in JF above were made in 1815-1823 and those in Figures 8 and 12 were both made circa 1845-1850.

Shape of Numerals. Most hour ring Roman numerals are similar in shape or style, although in some the numerals are more condensed. Compare the numerals of the Drocourt in Figure 13 with those of the Garnier in Figure 14. The Garnier dial is slightly larger but has more compressed numerals. Bolder or thicker fonts occur more in later dials with Roman numerals (FCC L67 [1890] and JF 69 [1890]). Arabic hour numerals are mostly Gothic (or "black letter") in font type as in Figures 11 and 15. But the French clock numerals (Figure 11) are bolder and contain more

flourishes, particularly in numbers 3, 8, and 9. In contrast are the simple-styled hour numerals in Figure 4. Still other shapes or styles of Arabic numerals exist, such as the moderately italic style in the Swiss clock in Figure 16 or the distinctive style with the canted 2 unique to Boston Clock Company carriage clocks as in their Queen Anne model (Figure 5). Although the Swiss clock is quite old (circa 1799), Arabic fonts or styles in carriage clocks seem to vary more toward the end of the nineteenth and early twentieth centuries.

Number of Numerals. It's no surprise that the vast majority of carriage clock chapter rings have 12 numerals, whether Arabic or Roman. Extremely rare is the 24-hour dial, although one is pictured in Roberts' book (197). But sometimes one or two numerals are lost or "hidden" when an auxiliary dial is placed on their location. For instance, some carriage clocks have a seconds dial within the main dial, often in the numeral XII position. Many variations exist, some of which are shown in JF as follows:

- a. The seconds dial completely covers the XII or 12 (182).
- b. The seconds dial covers the XII in the main dial but contains a small XII within the seconds dial (145).
- c. The seconds dial covers only the bottom half of the XII (186).



Figure 14, left. French, Garnier, numbered 1971, 2-1/2" dial diameter (3-1/8" dial plate width), strikes and repeats, circa 1845-1848. **Figure 15, center.** American, Boston Clock Company Athens model, numbered C3532, 1-7/8" dial diameter (2-1/4" dial plate width), timepiece, circa 1890. **Figure 16, right.** Swiss, Robert & Courvoisier, numbered 7822, 3-3/4" dial diameter and dial plate width, petite sonnerie, circa 1799.

d. The seconds dial covers all but a tiny bit of the top of the XII (54).

e. The seconds dial covers all of the XII and overlaps some of the XI and the I as well (194).

Other auxiliary dials, such as a moon dial, sometimes cover one of the main dial numerals (JF 111). A few carriage clocks have two auxiliary dials replacing or obscuring hour ring numerals (Figure 9). If winding from the front is required, a winding arbor may supplant a numeral, as in Figure 6 at the VI position. But not all front winding arbors were placed at numeral positions. The clock in Figure 16 has two winding arbors, although one does slightly brush the Arabic 2. Figure 17 shows four arbors, two of which overlap numerals II and VI. We look a bit more at winding arbors later.

Setting of Numerals. In their simplest setting, the hour numerals are painted or engraved directly on a plain dial with no additional enhancements or dimensional effects, as in Figures 2, 4, and others. A slight enhancement occurs when the ring is enclosed between circles inside and outside the chapters. Sometimes the enclosed chapter ring is shaded differently from the rest of the dial (Figure 12). Further design enrichment is gained when the entire chapter ring is raised or recessed. If a dial mask is in place, the entire dial may appear recessed (Figures 1 and 3). Also possible, though rare, is a dial raised above the dial mask rather

than recessed (Figure 19). We discuss dial masks later, but here our concern is whether the hour ring is raised or lowered from the rest of the dial. One such treatment is termed "annular" in which the ring itself is belled or bulged in the middle (FCC L82).

Perhaps the most intricate chapter settings occur when each numeral is treated separately, set on individual plaques or within individual circles. The circles containing each numeral can be flat (FCC L91), convex (Figure 20), or concave (ERA L88). Other shapes used besides plaques and circles include the scroll-like cartouche (FCC L58), the cabochon whereby all numerals are joined in the chapter ring but each is lobed or bulged in the middle (FCC L65), and the platform with square or rectangular flat dimensions (JF 60). Cartouches are usually raised, sometimes edged with brass (JF 28), and often made of porcelain enamel. This treatment also makes it possible to give the numerals a different color setting from the rest of the dial (e.g., red numerals on white cartouches set in a black dial as in FCC L101).

Decorations within the Hour Ring. Most carriage clocks produced in large numbers at a modest price for wider market have plain, undecorated dials and dial rings (see Figures 2 and 4). Decorations added interest and distinction, and commanded higher prices. A vast number of decorative options exist, almost too many to categorize easily, but I have grouped them into

three main types with numerous variations. These include decorations (a) in the dial center inside the hour ring, (b) within the hour ring itself between the numerals, and (c) including and linking both (a) and (b).

One variation of (a) is simply a recessed dial center with little or no further ornamentation (like Figure 17, with only an alarm setting in the recessed center). Decorative patterns in dial centers can result from engraving (Figure 8) or enameling (Figure 19), sometimes matching or complementing dial plate decoration outside the chapter ring (Figure 21). The painted dial center in Figure 7 complements the scenes outside the dial ring as well as on the side panels not visible in this photograph.

Between the hour ring numerals we sometimes find half-hour markers such as the gilt stars in Figure 3 and the small circles in Figure 21. More elaborate is the floral swag pattern around and between the numerals in Figure 11. Because this floral pattern does not extend to the middle of the dial, it fits type (b) better than types (a) or (c).

Decorations spanning both dial center and hour ring are rare and give the impression that the hour ring itself was superimposed onto a preexisting decorative pattern or painted scene. Fanelli's book pictures two fine examples: a French clock with a Limoges enamel outdoor scene covering the dial plate (20) and an

Austrian clock with a dial plate painting of a youth and maiden "in sylvan surroundings" (210).

Besides these three categories of decorations there are other items occasionally present within the hour ring, such as an auxiliary dial (already noted) or a maker or retailer signature, discussed further below. An extremely rare decorative option is the see-through or "skeletonized" glass dial, already noted in our look at dial material.

Minute Ring on the Main Dial

Nearly all carriage clocks have a set of minute markers surrounding the hour ring. This is the minute ring, typically containing 60 dots or lines and sometimes also a few numerals. This carriage clock dial component gets little attention, and even the term "minute ring" is rarely found in clock-related dictionaries or in the major carriage clock books. But in fact, there is remarkable variety in minute rings that can add a dimension of individuality to carriage clock dials. As part of my survey of 422 carriage clocks, I reviewed the characteristics of their minute rings; here are some of the results.

Minute Rings with Minute Divisions but Not Numerals. My survey found no carriage clocks without minute divisions or indicators of any kind (but for an exception see Figure 21). Typical types of minute divisions involve a series of 60 dots (Figure 12) or small

Figure 17, left. English, Vulliamy, numbered 1051, 2-7/8" dial diameter and dial plate width, strikes, circa 1835. **Figure 18, center.** French, Brocot, numbered 227, 2-1/4" dial diameter (3-1/2" dial plate width), petite sonnerie, circa 1885. **Figure 19, right.** French, James Crichton & Co., retailer, numbered 267, 2" dial diameter (3" dial plate width), strikes and repeats, circa 1890.





Figure 20, left. French, Caldwell, retailer, not numbered, 1-7/8" dial diameter (2-3/8" dial plate width), timepiece, circa 1890. **Figure 21, center.** French, LeRoy and Fils, numbered 13828, 7/8" dial diameter (15/16" dial plate width), timepiece, circa 1890. **Figure 22, right.** English, Chas. Frodsham, numbered 847, 2-1/4" dial diameter (2-5/8" dial plate width) timepiece, circa 1850.

radial lines or strokes like tally marks (Figure 7) free-standing and circling the outside of the chapters. Also popular is a ring of 60 closed segments defined by strokes between two parallel circles positioned outside the chapters (as in Figures 1, 2, and many others). It is also possible to have 60 strokes crossing a single circle surrounding the 12 chapters, but I found no dial with this configuration in the survey. Often every fifth minute is distinguished with a bolder dot (Figure 12) or stroke (Figures 7 and 8) or with indicators of different design (Figure 20) or a different color (Figure 3). Even more variation, though subtle, occurs when markers for every fifth minute are of different design from those at quarter-hour intervals (Figure 11). Minute rings located inside the hour ring are unlikely in carriage clocks, but that did occur in early longcase and traveling clocks that contained only one (hour) hand.⁷

Minute Rings with Numerals. All minute rings in my survey used Arabic numerals, regardless of the type of numerals in the main hour ring. Clocks with Roman chapters were somewhat more likely to have minute ring numerals than were clocks with Arabic chapters. Most frequent positioning was radial and not tumbling, although when the main dial chapters were Arabic, the minute ring numerals were most often horizontal. The predominant color of these numerals is black, but a few red and gold treatments were also found. The number of numerals in the minute ring also varies. Most often

there are 12, one marking each fifth minute (as in Figure 5), but minute rings with four numerals are also found, each marking a quarter hour (as in Figure 16). On some older clocks there are six minute ring numerals, each marking every tenth minute (ERA L46, L47). When the use of numerals is combined with the types of minute divisions available, many combinations and complications come forth. For instance, the numerals can be outside the division pattern (Figure 6) or within the pattern itself (Figure 16). The minute numerals can be small (Figure 5) or large (Figure 6). Various dots, tally marks, or double-circled segments can be paired with numerals of different colors.

Auxiliary Dials

Many carriage clocks display auxiliary dials in addition to the main dial. About 40 percent of the clocks in my survey had one or more auxiliary dials.

Types of Auxiliary Dials. The most common auxiliary dial is the alarm dial (Figures 1, 3, and others) that indicates when the alarm is to activate. It is powered by a separate spring and most typically will sound until the spring has run down.

The next most common is the seconds dial (Figures 9 and 10), which requires that the clock movement turn its arbor in exactly 60 seconds. This often implies a good quality clock such as one with a chronometer escapement (as in Figures 10 and 22).

Various types of calendar dials exist. These include indicators of day of week, day of month (i.e., date), and month of the year. Figure 13 shows calendar dials for day of week and date with an alarm dial between. This is termed a simple calendar because the date must be corrected manually at the end of any month not having 31 days. Other types include (a) a perpetual calendar that not only reflects the proper number of days for each month but also correctly reflects leap years (DR 82, 214) and (b) a semiperpetual calendar that requires manual leap year correction (CA 205). A final calendar type for day of week is a “fly-back” in which a pointer descends a vertical scale one day at a time until, at the end of the week, it “flies” back to the top to begin its descent again (DR 222-223). Some dials that show months also incorporate signs of the zodiac (ERA L16).

If a moon phase dial is present, it is usually accompanied by calendar work on the dial plate (DR 217-220), although there are exceptions where it appears alone (DR 324). Sometimes the visual representation of the moon phase is supported by a numerical scale of 1 to 29-1/2 days, marking the age of the moon in its lunar cycle (FCC L107, L109).

Other auxiliary dials are rare. One is the up-and-down dial that indicates how long a train has run since its last winding (Figure 10). Another is a barometer dial (FCC L111), usually circular and sometimes accompanied by a vertical thermometer (FCC L106). An equation-of-time dial is found on early Breguet carriage clocks and a few by Dent as well (CA 39-52 and 260-261). A noon-midnight or day-night dial (JF 180; ERA L37) tells whether the main dial is showing a.m. or p.m. time.

Other devices or indicators are not really dials but involve levers to control functions of a clock, such as the strike-silent lever that dampens the striking train (JF 180). The clock in Figure 17 contains this feature, but it is covered by the door frame and not visible in the picture. These should not be confused with levers that control the type of striking possible with clocks containing *petite sonnerie* or *grande sonnerie* striking mechanisms.⁸ Such levers are usually on the clock’s base rather than on the dial (for clocks with these levers on the dial see JF 110 and 152). Some indicators are not in dial form but are on rollers that show through apertures. For instance, days of week, months, and even years might be presented this way (ERA L83, L155).

Location of Auxiliary Dials. Auxiliary dials are found in three areas on the dial plate: within the main dial, below the main dial, and above the main dial.⁹ We have already noted the locations that a seconds dial might occupy to partly or totally obscure main dial numerals (Figure 22). Some seconds dials are simply the main dial minute ring with a seconds hand attached to the central arbor (FCC L34, L94). Other

auxiliary dials found within the main dial include alarm dials (on a separate arbor in Figure 9 or sharing a central arbor in Figure 16), calendar dials (Figure 6), and up-and-down dials (Figure 10). Separate moon dials sometimes reside within the main dial as well (FCC L109).

Auxiliary dials are far more likely situated below the main dial than above. Most alarm dials appear below the main dial (Figures 1, 3, 4, and 20), as is true also for the rarely found aperture openings (ERA L83 has a combination of dials and apertures in calendar work). Calendar work usually sits below the main dial (Figure 13), often joined by an alarm dial as well. Sometimes an auxiliary dial is displayed on the dial mask covering the dial plate rather than on the dial plate itself (see the alarm dial in Figure 23). Auxiliary dials above the main dial are rare but are occasionally found (Figure 10). As an aside, some clocks with alarm mechanisms have no dial visible on the dial plate because the alarm setting is in the back of the clock (CA 193-194 has two examples).

Auxiliary Dial Size, Shape, and Dimension. As a rule, these dials are smaller than their clocks’ main dials. (See DC, Figure 11 for a seconds dial as large as the main dial and ERA L83 for a calendar dial as large as the main dial.) They are most often round, although some up-and-down dials have an arched or semi-circular shape (Figure 10). Auxiliary dials located within the main dial are often recessed to prevent contact between the main dial and the auxiliary dial hands (Figures 17 and 22). If the main dial is convex or raised (or lowered) in some fashion on the dial plate, an auxiliary dial placed above or below it is likely to mimic that pattern (see JF 16 for an example with annular main and auxiliary dial rings).

Auxiliary Dial Numerals and Indicators. Most auxiliary dials involve numeric measures, so these dials contain numerals (for an alarm dial without numerals, see Figure 17). The number of numerals depends on the type of auxiliary dial involved. Alarm dials inevitably have 12 numerals (e.g., Figures 1, 3, and 4). Seconds dials have more variety: some show only four numerals—15, 30, 45, and 60, others show six numerals—10, 20, 30, 40, 50, and 60, and still others show 12 numerals (compare Figures 9 and 10). Calendar dials can contain different scales, and one showing the date will typically contain 16 numerals—every other date from the 1st to the 31st (Figure 13). But if the calendar shares the main dial center arbor, we may find all 31 dates marked on the dial (see the red dial ring in Figure 6). For those few carriage clocks with up-and-down dials, the most typical pattern in an eight-day clock is five numerals—0, 2, 4, 6, and 8. These indicate either how many days the clock has run since it was wound (JF 137) or how many days remain before it needs winding again (Figure 10).

Some calendar dials show words to indicate days of the week or months of the year. Variations involve the language used, such as French or English, which might reflect the intended market for the clock (France or England) or perhaps the personal wishes of the clockmaker. English days of the week are in Figure 13 and French days are in Figure 6. On rare occasion a different language appears, such as Turkish (JF 208).

As with main dial numerals, we can also examine the positioning, color, and other features of auxiliary dial numerals. My survey confirmed that Arabic numerals far outnumber Roman numerals and that the majority of Arabic numerals are tumbling in position. (The seconds dial numerals in Figure 10 are not tumbling, however.) The oval clock in Figure 24 has the only Roman numeral auxiliary dial in the accompanying illustrations. Black is the predominant color, but if the main dial is not black, the auxiliary dial color is likely to match the main dial color (Figure 1). Note the positional anomaly in the alarm dial in Figure 9, which is configured counterclockwise. Some of Paul Garnier's carriage clocks used this unusual pattern (JF 53).

Most of the earlier comments on hour ring numerals also apply to auxiliary dials. For instance, the numerals can be encircled with a single solid ring (Figure 4) or a double ring (Figure 9), or both an inside and outside ring can occur (Figure 20). Various kinds of divi-

sions are also found, such as dots (Figures 3, 10, and 24) or strokes (Figures 9 and 22). When the main dial numerals occupy individual plaques, cartouches, or circlets, auxiliary dial numerals are often treated the same (although not in Figure 20). If a dial mask surrounds the main dial, the auxiliary dials are usually treated the same (Figures 3, 13, and 24). And when there are other decorations in the main dial hour ring, these often are repeated in the auxiliary dial as well, especially for alarm dials (ERA L6, L72, L74).

Hands in the Main Dial

With its two hands on the center arbor of the main dial, a carriage clock tells us the time in hours and minutes. Sometimes that center arbor bears additional hands as well, as in Figures 6 and 16, but those extra hands serve other purposes such as indicating an alarm setting or calendar information. We review hands on auxiliary dials later, but for now we concentrate on the hour and minute hands of the main dial.

Style of Hands. The majority of carriage clock hands involve one of three styles, most commonly called spade, moon, and *fleur-de-lis*. Moon hands are also known as Breguet hands, after the clockmaker who popularized this style in the early nineteenth century. Spade hands are seen in Figure 2 (and others), while moon hands occur in Figure 10, and *fleur-de-lis* exist in Figures 8. But hands of the same style do not

Figure 23, left. French, Breguet, numbered 876, 2" dial diameter (2-5/8" dial plate width), grande sonnerie, circa 1847. **Figure 24, center.** French, Dent (retailer), numbered 164, 2" dial diameter (2-1/2" dial plate width), strikes and repeats, circa 1850. **Figure 25, right.** Swiss, JTC, numbered 637, 1" dial diameter (1-1/4" dial plate width), timepiece, circa 1890.





Figure 26, left. French, L. Leroy & Cie., numbered 21229, 1-1/2" dial diameter and dial plate width, timepiece, circa 1895. **Figure 27, center.** French, unnamed maker, numbered 9271, 1-7/8" dial diameter (2-1/2" dial plate width), strikes and repeats, circa 1895. **Figure 28, right.** French, Sango LaCroix, not numbered, 2-1/4" dial diameter (3-1/4" dial plate width), petite sonnerie, double-hour strike, circa 1850.

all look exactly alike. For instance, the spade hands in Figure 5 are fatter than those in Figure 2 (fat spade hands are sometimes called pear hands), and the spade minute hand in Figure 22 is much thinner than in other clocks. The travel clock in Figure 16 has hands that combine spade and moon characteristics. Some hands appear to be a compromise between the spade and fleur-de-lis style, such as those in Figures 1 and 4. The thinner version (Figure 1) is sometimes labeled *fuseau* which means spindle shaped. The wider version (Figure 4) tends more to the fleur-de-lis style. Charles Allix observed that this style might have evolved because the royal connotation of the fleur-de-lis had to be modified after the French Revolution, and he termed these as "fleur-de-lys without ears."¹⁰

Other styles exist, of course, and at least 15 patterns were apparent in my survey. Many variations exist in these patterns, and the names attached to these designs often differ from one author or catalog description to another. For instance, pierced hands include many configurations with open portions in their designs (as in Figure 26). Moon hands can be considered as pierced unless the moon is filled rather than open, but are usually categorized separately because of their prevalence. The beetle and poker style typically involves two hands dissimilar in design, with the beetle hour hand containing two circular lobes on each side of the pointer and the minute hand looking much like a

poker (ERA, L100). But some clockmakers might use two matching beetle hands, as in Figure 23. Other examples illustrated here are the girandole (Figure 6) which is a pierced design with a series of decreasing size circles or ovals, the pointer (Figure 26), and the cruciform (Figure 14). A few clockmakers devise very creative hands that fit in no category, such as two hands that form the shape of a lizard when the hands line up (JF 62). Other styles not pictured include the trefoil (ERA L72) shaped like a three-leaf clover, quatrefoil (ERA L9) resembling a four-leaf clover, Maltese (JF 184) mimicking the Maltese cross, arrow (JF 150), and the diamond (ERA L36).

Color and Material. Although black is the dominant color of carriage clock hands, it is most likely the result from a bluing process in which polished steel hands are heated until a dark blue color is produced under a protective film of oxidation (see DR 362 for a brief explanation). The resulting appearance is near black with a slightly shiny finish, and nearly all "black" carriage clock hands are really "blued." Black painted hands are rare (Figure 20 has black painted hands), but the difference between painted and blued hands can often be determined by close inspection. The minute hand in Figure 5 clearly reflects the blued treatment because of the lighting setup when it was photographed.

Gold hands, which occurred in about 20 percent of the main dials in my survey, can also be produced in two ways. One is to gild steel hands (Figure 26) and the other is to cast or shape them entirely out of gold (Figures 12 and 23). Solid gold hands are less likely to discolor after a long period of time and do not need regilding to restore their original character. Hands of other colors and materials are quite definitely uncommon.

Size of Hands. The longer (minute) hand is considered to be of proper length when it reaches to the outer edge of the minute ring as in Figures 2, 7, and most others. If the minute hand extends beyond the minute ring, it may be a replacement for the original. The minute hands in Figures 4 and 11 raise this suspicion, although they were relatively inexpensive timepieces when new, so perhaps the seller had less concern for the precise length of hands. The shorter (hour) hand follows a less consistent norm but generally will terminate near the inside edge of the hour ring. The hour hands in Figures 2, 5, and 15 seem a bit long using this rule. But those three clocks were made by the Boston Clock Company, so perhaps this practice reflected a company standard. In no picture here does either hand extend across the center arbor to the counterside. That was more common in larger clocks with bigger and heavier hands because the extension provided a counterbalance to the heavy hands as they progressed to the top half of the dial. Weight was also a reason for piercing rather than making the hands solid, but weight is more critical for larger clocks with big dials and heavy hands than for carriage clocks. In my survey there were just a few carriage clocks with hands extending across the center arbor, and these had fancy and large pierced hands (e.g., FCC, L13).

Hands in Auxiliary Dials

Auxiliary dials usually have one hand, pointing to an alarm setting or a day of the week or some other measure. Although Figure 6 shows two auxiliary hands on the center arbor, these are single hands for two separate dials: day of week and date of month. Because most auxiliary dials are small, their hand styles are generally simple to make them more easily readable. As a result, styles of auxiliary dial hands do not always match the styles of main dial hands.

Dial details from images noted below.



Figure 2.



Figure 4.



Figure 5.



Figure 6.



Figure 16.

Spade (Figure 1) and pointer (Figure 3) hands predominate and most are blued to appear black, although gold hands are sometimes found (Figure 1).

In another contrast to their main dial counterparts, auxiliary dial hands often have tails to the counterside of their arbor. Single-handed clocks from centuries earlier had hands with tails, so the tails on the single hands of auxiliary dials may be a legacy from that earlier practice. Even if the carriage clock's auxiliary and main dial hands do match in style, the tails usually have some design element that matches the forward side of the main dial hands. Thus, the main dials in Figures 13 and 24 have moon hands so their auxiliary dials have a matching moon design, but on the opposite or tail side of the hands. Figures 3, 4, and 10 are examples of nonmatching hands. The alarm dial hand in Figure 3 has a tail resembling the heart in a deck of cards. The alarm dial hand in Figure 4 contains a moon on its counterside. The seconds dial in Figure 10 contains a moon that is solid rather than open. Auxiliary dial hands sharing the center arbor of the main dial are less likely to extend to a counterside (Figures 6 and 17), but the center arbor alarm dial in Figure 16 is an exception and has a short tail. Matching can be examined in terms of color and material as well. For instance, the main dial hands are gold in Figures 6 and 23, but the auxiliary dial hands are blued. Conversely, the gold auxiliary dial hands in Figures 1 and 17 contrast with silvered (Figure 1) or blued (Figure 17) main dial hands.

Auxiliary dial hands can also be inspected for proper length. The alarm dial hands seem too long in Figures 4 and 20. The minute hand in Figure 4 also seems too long, so perhaps this parallel represents a consistent reflection of the clockmaker's preferences.

Dial Masks and Other Decorations on the Dial Plate

We now turn to the dial plate area outside the dials. The area around the dials offers opportunities for decoration, and the variation in these treatments is vast and not easy to categorize and distinguish. One type of decoration is a dial mask, a separate layer of material such as brass covering the area around the dial(s). Alternatively, decoration can be applied directly on the dial plate. The

decorated area outside the dial(s) is sometimes called the dial “surround,” which can include both treatments—a dial mask (plain or decorated) or decoration directly on the dial.

Many carriage clocks contain no decoration on the front of the clock around the dial. Figures 2, 4, 11, 20, and 25 are examples. The resulting plain white enamel panel may be less interesting visually but is usually easy to read. A lack of decoration also implies a clock of moderate price and quality, but some makers produced clocks of fine workmanship and technical quality without dial masks or other decorative surrounds.¹¹

The most basic decorative treatment involves a dial mask that is simply gilded (Figure 5) or silvered (Figure 1). Some masks are also engraved (Figures 13, 22, and 24) or chased (Figure 23), which is a deeper cut of engraving often augmented by use of a chisel or hammer. The strut clock in Figure 8 has both an engraved and silvered pattern in the dial plate and an engraved gilt mask. Engraving done by machine can produce intricate repetitive patterns called engine-turning, as in the surround in Figure 10. The term “damascening” is used to refer to a type of engine turning that is not as deeply cut and produces a wavy impression in addition to the engraved pattern (JF 205).

Some dial masks are pierced, producing openings within engraved designs that give a sculptural or relief impression of fretwork (Figure 3). Sometimes the term “filigree” is applied when the result is more delicate (Figure 12). A related treatment is *repoussé*, whereby the sculptural depth is accented by shaping the pattern with hammers often from underneath (Figure 21).

Enamel work is also found in dial masks, such as the *champlevé* treatment in Figure 27. Another use of polychrome enamels is shown in Figure 19, in which the dial with its accompanying enamel surround is raised above a plain gilt mask. When clear or translucent enamels are applied over an engine-turned surface, the technique is called *guilloché* (JF 53, 116).¹² In a somewhat related technique called *pietra dura*, designs are created with naturally colored thin stones, usually on a dark background. This treatment is quite rare on carriage clocks (DR 155; JF 107).

Dial surrounds can include painted scenes on enamel panels as in Figure 7. Other treatments involve porcelain, as noted earlier regarding color and material of main dials. Many of these dial designs extend through the entire dial surround (DC Figure 14), even in some instances to the sides of the case (FCC L128-L134). Some dial front decorations are cast, often to mimic a cast design in the rest of the clock case (Figure 18). The small clock in Figure 26 contains a separate cast bezel surrounding the dial depicting a braided and foliate wreath that is set on the engraved front panel of the case.

Dial Covers

On all carriage clocks I have seen, the dials are glazed (i.e., covered with glass). Typically, it is beveled glass, although not always as in Figures 9, 16, 17, and 22. Beveling adds an elegant touch and helps minimize chipping at the edges, but it requires more work and cost. Because these four clocks represent very different vintages—Figure 17 from 1799 and Figure 9 from circa 1890—it is unlikely that beveling is simply an indication of age. The clock in Figure 6 has beveled glass and dates from circa 1775.

The glass can be housed in three ways. Most typically it is within a fixed frame and covers the entire dial plate as in most of the clocks pictured here. If there is a need to access the dial plate, the front glass cover is in a door that opens and closes with a knob (Figure 28) or a key that locks (Figure 17). Sometimes the glass is in a bezel surrounding the dial only, not the entire dial plate, and is either fixed (Figures 18 and 26) or moveable (Figures 6 and 16). Access to the dial is necessary if the hands must be set manually (Figures 17 and 28) and/or the movement is wound from the front (Figures 6, 16, and 17).

Glazed bezels, especially those that open, often contain convex glass, whereas the glazed fixed frame covering the dial plate is typically flat. If the case style is oval, the glass covering the dial plate is usually oval as well (Figure 24). Some early Garnier carriage clocks in one-piece cases were wound from the front, so the front glass panel and its top rail were made to slide upward to access the winding arbors (CA, 56).

Other Dial Plate Components

Signatures. A name sometimes appears on the dial plate, often within the dial itself. For those clock dials with no name or signature, one might exist on the back plate (Figures 13, 18, and 20). A dial signature has three characteristics: contents, location, and whether it identifies the clock’s maker or seller. The contents of a signature can be simply an identifying mark (Figure 9), a person’s name (Figures 10 and 23), name and title (Figure 14), name and city (Figures 6 and 17), name and address (Figure 3), name, title, and address (Figure 24) or name and clock number (Figures 12 and 22).¹³ Inclusion of a title might help promote the signer’s notoriety, as could the disclosure of a prestigious address and city.

The signature can be located above the main dial (Figure 9), within the top half of the dial (Figures 10, 14, 17, and 19), within the bottom half of the dial (Figures 12, 22, 23, and 28), below the dial (Figures 15), or split between top and bottom of the dial (Figures 3 and 6). Reasons for various locations are not easily inferred, although multipart signatures (name, address, city,



Figure 3.

Signature details from images noted below details (also see Figure 3 detail, pg. 689).



Figure 9.



Figure 14.



Figure 10.

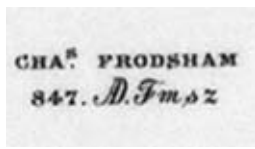


Figure 22.



Figure 24.

etc.) may look more appealing if divided rather than in one large block. A potential cosmetic enhancement can also occur if the signature information is placed on a plaque or cartouche rather than directly on the dial (Figure 12).

Whether the signature is that of the clock's maker or retailer is sometimes not easy to determine. For example, A. Ecalle appears on the dial in Figure 3. Auguste Ecalle was an agent and importer but also won medals in the Paris Exhibitions of 1878 and 1889 for carriage clocks (CA 439), so a question is whether Ecalle is this clock's maker, seller, or both. The signer in Figures 12 and 24 is most likely the same Edward John Dent, but he is the maker in Figure 12 and probably the retailer in Figure 24. Tiffany is a prestigious name on carriage clocks that were, in fact, made by others (JF 130-131 shows a clock by Margaine with Tiffany on the dial). Of course, all retailer-signed clocks come from some maker, but the maker's name was often omitted from the dial at the request of retailers who wanted their own name to be prominent.

Research is often useful to determine if the name on the dial is truly that of the maker, because a maker's name (particularly if well known) can enhance the clock's value and interest and help determine its age. But two cautions are needed for maker's signatures, regardless of their location on the clock. First, the role of a named "maker" might range from personally making the entire clock to assembling the clock with components made by others to putting his name on a clock made to his specifications but entirely by others who may or may not be in his employ.¹⁴ In the latter instance, value attributed to the maker's name may be more modest. Second, famous maker names have been forged, so the presence of a well-recognized name does not guarantee authenticity. Breguet, for example, devised a secret signature to be placed inconspicuously on dials to authenticate his work because forgeries of his name were frequent.¹⁵

Winding Arbors. Some carriage clocks made in the early nineteenth century were wound from the front with winding arbors placed through the dial plate. The

single arbor in Figure 6 winds both time and strike, tasks that involve two separate arbors in Figure 16. Figure 17 shows four arbors within the dial. These were used to wind time, strike, and alarm, and to set the alarm. These arbor placements reflect the locations in the movement behind the dial plate where the winding or setting operations occur. Arbor holes within enamel dials are sometimes ringed with brass to protect the enamel from being chipped or scratched by the winding keys. Rings were not used in either Figures 6 or 16, but they are found in other examples (ERA L78). Arbor holes in brass or other metal dials are generally not ringed because the risk of damage from winding is much less (Figure 17).

Visible Parts of the Movement. On rare occasion a vertically positioned balance and escapement is made visible within the dial. Examples shown in ERA L78-L81 date from the late nineteenth century. More extensive movement visibility occurs in clocks with glass dial plates. As noted earlier these are often termed skeletonized dials, are very rare, and were likely made for special exhibitions (JF 11-12). Movement visibility is common in carriage clocks through clear glass sides but seldom through the dial.

Inscriptions, Monograms, and Other Descriptors. Some carriage clocks used as gifts or presentation pieces contain inscriptions or monograms to mark the occasion or recipient. The clock in Figure 8 contains a coronet design engraved in the dial center together with a monogram resembling the letters KK with the second K reversed. Other clocks contain monograms below the main dial (FCC L116). Inscriptions are truly rare, although some come up occasionally in major auctions (L72 of the Christie's April 13, 2005, auction). If the inscription is dated, or if the person or event is known, this can aid in dating the clock. Sometimes there is a country of origin mark, such as "France" or "Made in France." The McKinley Tariff Act of 1890 required that items imported to the United States be labeled with their country of origin. So clocks labeled "France" on the dial (FCC L22) or on the back plate were likely made in France after 1890 to be exported to the United States. The law was revised in 1914 to add the words "Made in ..." although some clocks apparently did not bother to conform immediately, while others already contained that wording.¹⁶

Flaws and Wear

Enamel dials can become cracked or chipped from rough handling by repair persons taking apart or reassembling the clock or from dropping or pressure on the dial plate. Subsequently, these flaws might have been "fixed" by bleaching and filling with wax or plastic resin.¹⁷ Often the repair is evident because its color differs from the original enamel, and some collectors might prefer a few dial cracks to an awkward repair.

Cracks or chips that involve numerals or other dial markings are sometimes repaired with paint or ink. If these repairs are done on top of the dial surface, after the enamel and original markings were permanently fired, these repairs are subject to rubbing and wear. Similarly, a retailer's name on an enamel dial was often added after the dial had been fired and over time may become worn and only partially visible. In contrast, a maker's name placed on the dial before the enamel was fired is more permanent because it is not directly subject to wear and tear from the dirt and grime in the atmosphere.

Dial plate areas that are gilt or silvered are subject to different problems of wear and discoloration. Silvered dials or masks become tarnished, for instance, and even polished brass will discolor unless properly lacquered. Paper dials are especially prone to deterioration, so replacements may have been made or purchased. We have already cautioned about dial hands that are not original; note also that decorations such as enamels or painted panels do become damaged and may need to be or have been repaired.

Conclusion

The carriage clock dial can be simple as in Figures 2 and 4 or quite complex as in Figures 13 and 19. If you have managed to persevere through this entire article, I think you may have discovered some aspects of carriage clock dials that missed your attention in the past. I hope this gives you a fresh and expanded look at what these clock dials offer and how they can express individuality. I think also that you will gain greater appreciation for the many details and decisions faced by these clockmakers throughout the nineteenth century as they fashioned the dials for these interesting and attractive timekeepers. If you are a collector, I hope this guides you in identifying some new features and nuances to seek out and add to your assemblage. Look carefully the next time you come face to face with a carriage clock dial.

References

- CA Charles Allix, *Carriage Clocks: Their History and Development* (Woodbridge, Suffolk: Antique Collectors' Club, 1974).
- DC Doug Cowan, "An Introduction to Carriage Clocks," *NAWCC BULLETIN*, No. 349 (April 2004): pp. 179-184.
- DR Derek Roberts, *Carriage and Other Travelling Clocks* (Atglen, PA: Schiffer Publishing, 1993).
- ERA *The Dr. Eugene and Rose Antelis Collection of Important French Carriage Clocks*, auction catalog (London: Christie's South Kensington, November 26, 1998).
- FCC *French Carriage Clocks*, auction catalog (London: Christie's South Kensington, July 3, 1997).
- JF Joseph Fanelli, *A Century of Fine Carriage Clocks* (Bronxville, NY: Clock Trade Enterprises, 1987).

Notes

1. Doug Cowan, "An Introduction to Carriage Clocks," *NAWCC BULLETIN*, No. 349 (April 2004): pp. 179-184; Thomas R. Wotruba, "A Look at the Amazing Variety in Carriage Clock Tops," *NAWCC BULLETIN*, No. 349 (April 2004): pp. 185-201.
2. A good discussion of porcelain and enamel in carriage clocks, with many illustrations, is found in DR 163-196.
3. A rare few carriage clocks have two, three, or even four "main" dials located on the dial plate and the back (CA 219) and/or the sides (DR 238 for a three-dial clock and CA 220, for a four-dial clock).
4. The full tabulations are not included in this article but may be obtained from me by request. Send me an e-mail (twotruba@mail.sdsu.edu) and I will attach them to an e-mail back to you.
5. An extended discussion of the history of the carriage clock industry is found in CA.
6. For instance, Richard C. R. Barder, *English Country Grandfather Clocks* (North Pomfret, VT: David & Charles, Inc., 1983).
7. See CA 5-13.
8. These are discussed in the sources in footnote 1.
9. Occasionally, a barometer and/or thermometer is placed on the sides of a clock case instead of the dial plate (FCC L110, L112, L118). A later configuration involves housing these devices in a separate case attached side-by-side to the clock case. These are sometimes called compendium clocks (FCC L7).
10. CA 78-79.
11. Allix makes this point in his discussion of Henri Jacot carriage clocks (CA 114-115).
12. For more discussion and illustrations of the types and processes of enameling, see Erika Speel, "Enameled Miniature Clock Cases," *Horological Journal*, Vol. 145 (January 2003): pp. 16-19.
13. The number on the Frodsham in Figure 22 is 847, followed by a code that Frodsham used to indicate when the clock was made. "AD Fmsz" translates to the year 1850 as explained in Vaudrey Mercer, *The Frodshams: The Story of a Family of Chronometer Makers* (Ticehurst, England: Antiquarian Horological Society, 1981): p. 142.
14. An extensive discussion of this issue with many examples is found in CA, Chapters 3-6.
15. Breguet used a device called a pantograph to engrave his secret signature from a master version. See George Daniels, *The Art of Breguet* (London: Sotheby's Publications, 1975): pp. 32-33.
16. Information from the Cocksackie Antique Center at www.cocksackie.com.
17. Dial repair procedures are described in Laurie Penman, *The Carriage Clock* (London: N.A.G. Press, 2005): Chapter 4.

About the Author

Tom Wotruba is a Ph.D. in business administration and a former professor of marketing at San Diego State University where he retired in 2000. During his teaching career of more than 30 years, Tom published textbooks and many articles in academic business journals. An avid collector of carriage clocks for more than 20 years, he has published three previous articles in the *NAWCC BULLETIN* beginning in August 1999 and another in the *Horological Journal* in January 2003. He can be reached at twotruba@mail.sdsu.edu.