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Letter from the Editor

If you weren't in Lancaster, PA, in mid-July, you missed an excellent Time Symposium. You're in luck, however, because the lectures are available on our YouTube channel (www.youtube.com/@NAWCCMuseum). Brew a cup, settle into your favorite chair, fire up the laptop, and spend a few hours exploring the horological heritage of Pennsylvania.

Looking back at the rest of 2023, I'm grateful for the chance to have worked with writers who submitted engaging articles covering a variety of topics. *Bulletin* authors are a lovely combination of seasoned pros who regularly submit and newbies who have never written an article before. This year's writers are listed on page 425 to acknowledge their contributions—a big thank you goes to each of them.

I encourage you to submit your own article on a topic close to your horological heart. Perhaps you would like to share details about your own collection: some great photos and information on the type of timepiece, its history, why you collect it, and what you have learned about its conservation or restoration. If an article idea is percolating but you're not quite sure about it, feel free to be in contact to brainstorm. I'm looking forward to working on the next batch of *Bulletin* content in 2024.

Best wishes for a joyful holiday season!

Laura Taylor
Managing Editor
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About the Front Cover

The eye-catching DOXA Sub 300 watch on the front cover embodies the realization of a young collector's dream. On page 408, Brent Lucke explores one collector's path to the milestone moment when he strapped this watch to his wrist. Image courtesy of doxawatches.com.



About the Back Cover

W. A. Wood's Globe Time Recorder, circa 1910, is featured on the back cover. Made in Montreal, Quebec, the clock now resides in the Canadian Clock Museum in Ontario. On page 388, Allan Symons shares the intriguing story of William Archibald Wood, who designed, patented, and manufactured time recorders in Canada for a Canadian market.

Message from the Board Chair

With the holidays and the end of the year quickly approaching, a look back at the past year and its accomplishments seems appropriate. The year has not been without its challenges, but the NAWCC has a lot to be thankful for and to celebrate.

As Chair of the Board of Directors, I am truly thankful to have worked with an incredible team this past year, including a talented and dedicated group of directors, a wonderful headquarters staff led by Executive Director Rory McEvoy, and all the members and volunteers who make the NAWCC such a great organization. Our staff and membership are our greatest assets, and they are what makes the organization tick.

Over the past year, the Museum has seen upgrades to several of our galleries, made possible by both corporate and member donations, a lot of hard work by our staff in Columbia, and volunteers who have donated both their time and resources. Thanks to a generous donation from members, work is also underway to digitize more material from our Library and Research Center's archives. This will allow more material to be accessible to members who are not able to visit our Museum or Library in person.

As reported previously, we are challenged with a number of upgrades needed for our Museum and headquarters facility, most notably the replacement of the HVAC system, which will be a considerable expense. Through a lot of hard work from staff and



the Board, we were able to make great strides in efforts to secure a significant grant to help offset some of this cost. There is much more work ahead, but I'm optimistic that this grant, along with potential help from our members, will allow us to move forward with these needed updates to our facilities.

I'm also very thankful for and encouraged by the execution and turnout for the National Convention, which was held in Lancaster, PA, this past July. It was a great event that not only showcased our Museum in Columbia but proved that the NAWCC continues to be an organization that can appeal to those interested in all facets of horology. Before the end of this year's Convention, a dedicated team had already started planning and organizing next year's Convention in Chattanooga, where we look forward to continuing the momentum from this year's event.

Again, I am extremely thankful to be associated with a great group of people who share a common interest in the art, science, and history of timekeeping. We have limitless talent within the NAWCC, and I would like to encourage members to get involved at either the Chapter and/or national level. With your help we can make 2024 an even better year.

Rhett Lucke

NAWCC Chairman of the Board

rlucke@nawcc.org

Message from the Executive Director

What a year it has been! As we head into the holiday season, I will follow tradition and reflect on some of the highlights from 2023. Internally, it has been a year of cleansing. The back spaces of the Museum, School, and offices were choked with relics from previous exhibits – signage, furniture, old packaging, etc. It is understandable that our predecessors stored so much for possible future use, but this practice can only go on for so long before saturation hits. All items were evaluated and reorganized, recycled, or discarded. Old exhibit placards and labels were photographed



before being disposed of. The more solid fittings were retained for adaptation for future use.

Freeing up space in our storage areas enabled us to make positive changes across the NAWCC campus. These projects required a good deal of moving, cleaning, and reordering. My team are fantastic. They rolled up their sleeves on numerous occasions to bring the place into good order. Their efforts have been complemented by the support of many volunteers. The behind-the-scenes areas at the Museum have been transformed with orderly storage and a functional conservation studio.

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Special thanks are due to Ralph Pokluda and Jeff Zuspan for their generous donation of time and energy to help with this.

In April we held what we hope to be the first of many volunteer weeks. It was tremendous! Special mention must go to Kurt Strehlow, who took three weeks away from his horological business in Germany to help us restore and conserve a number of important tower clocks that are now happily running in our Public Time gallery. Kurt managed the team who worked on our E. Howard striking movement and the Schwalbach 30-hour tower clock movement. Long-term volunteer Don Dahlberg did some phenomenal work in bringing to life an Aaron Dodd Crane tower clock with walking pawl escapement. All of these clocks are on display and are run daily in the Public Time gallery.

It has been a delight to see the School flourish under the stewardship of our Director of Education, Ken De Lucca. He has developed new courses that have received consistently positive feedback and now range from the basic introductory workshops to the complexities of rack-and-strike clocks. Students are invited to consolidate their training and refine their skills in the mentorship classes, which offer not only the facilities in which to service antique pieces but also the expertise of the tutor to guide the processes. We continue to develop our watchmaking classes. These workshops demand the highest-quality equipment, and so we are developing them slowly in order to provide the students with the best possible experience.

We are grateful to our visiting tutors—Bernhard Stoeber, Dave Gorrell, Jerry Kieffer, Lee Davis, and Tony Paster—who brought a wealth of experience to the workshops. The School now has three fully equipped teaching spaces, and two more are currently in development. Thanks to a team of regular volunteers—Bill Forney, Erich Gochenauer, Istvan Varkonyi, Kevin McCauley, Mike Simon, and Paul Kraus—the back spaces and inventory of tools and clock movements are stored in an orderly and accessible fashion. We continue to restore the tools and are slowly building up the stock of new



The Aaron Dodd Crane clock restored by Don Dahlberg has a watch-size mainspring that powers the escapement and is wound every minute by the remontoir.

materials. In short, the NAWCC is better positioned to fulfill its educational role, and it will continue to expand its commitment to educating both collectors and professionals.

Moving forward, we continue to cut costs where possible across our operations. Most of these initiatives will not be visible. The most noticeable will be a change to the *Watch & Clock Bulletin*, which will also include content from *Mart & Highlights* starting with the January/February issue. Reverting to a single publication is cost effective: we researched the market thoroughly and came to an agreement that will yield a healthy savings without any impact on quality. The content of the *Bulletin* and *Mart & Highlights* will be published in this single journal with only very minor changes, such as the minutes of Board of Directors meetings being published online beginning in January.

Over the coming year we will be making some changes to the NAWCC's online persona. I am particularly looking forward to the launch of our online mart, which promises to make online trading easier and cheaper for members. I will be updating you on changes as they develop.

On behalf of all the team at HQ, I wish you a very pleasant holiday season and a prosperous and healthy New Year.

Rory McEvoy
NAWCC Executive Director
rmcevoy@nawcc.org



2024 Calendar

New product!

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The Sad Tale of the Manistee Watch Co.

BY ANDREW DERVAN, NAWCC SILVER STAR FELLOW (MI)

The Manistee Watch Co. was founded in Manistee, MI, in 1908. Unfortunately, it was a short-lived enterprise, only producing watches from 1909 to 1911 (Figure 1) and going bankrupt in 1912. In December 2020, an NAWCC watch collector suggested that I investigate the company, since he had found little information on it¹ and he knew that I enjoyed researching clock and watch companies. He was curious if the factory building was still standing.

Google Earth indicated that the factory was gone and condominiums occupied the site. I emailed the Manistee County Historical Museum, and the curator, Mark Fedder, confirmed that the factory had been torn down around 2005.² I inquired if the museum had any period factory photographs, and he provided two taken of the company in the early 1920s (Figures 2A and 2B). The factory's location was well chosen as it was northeast of the Manistee downtown area along Lake Manistee to minimize dust. The factory's main axis was laid out roughly north/south for maximum natural lighting, and its entrance faced west.

Brief Company History

The Manistee City Common Council had approved \$50,000 in bonds to develop parks in March 1905, but the money was never spent. In May 1908, William L. Rath contacted the Manistee Commercial Club and presented it with a signed contract to construct and run the Manistee Watch Co. The Commercial Club was formed in 1907 to boost Manistee's industrial interests.³ Rath's proposal claimed that the factory would bring 250 high-paying jobs to Manistee. He projected that the factory would be ready within six months of approving the contract.⁴ Rath was an influential Ludington, MI, businessman and was possibly involved with the Star Watch Case Co. Rath may have been known by Manistee Commercial Club members either personally or by reputation. Rath's technical partner was Joseph M. Bachner, a trained watchmaker who had been involved in several small watch companies. I was unable to determine how Rath and Bachner became acquainted.

Manistee's population had peaked in 1900, and it was declining rapidly (it would drop 13% by 1910),

Figure 1. Penny postcards such as this one became very popular around 1900. It is amazing that someone made the effort to create an image of this very small watch company in an out-of-the-way place like Manistee, MI.



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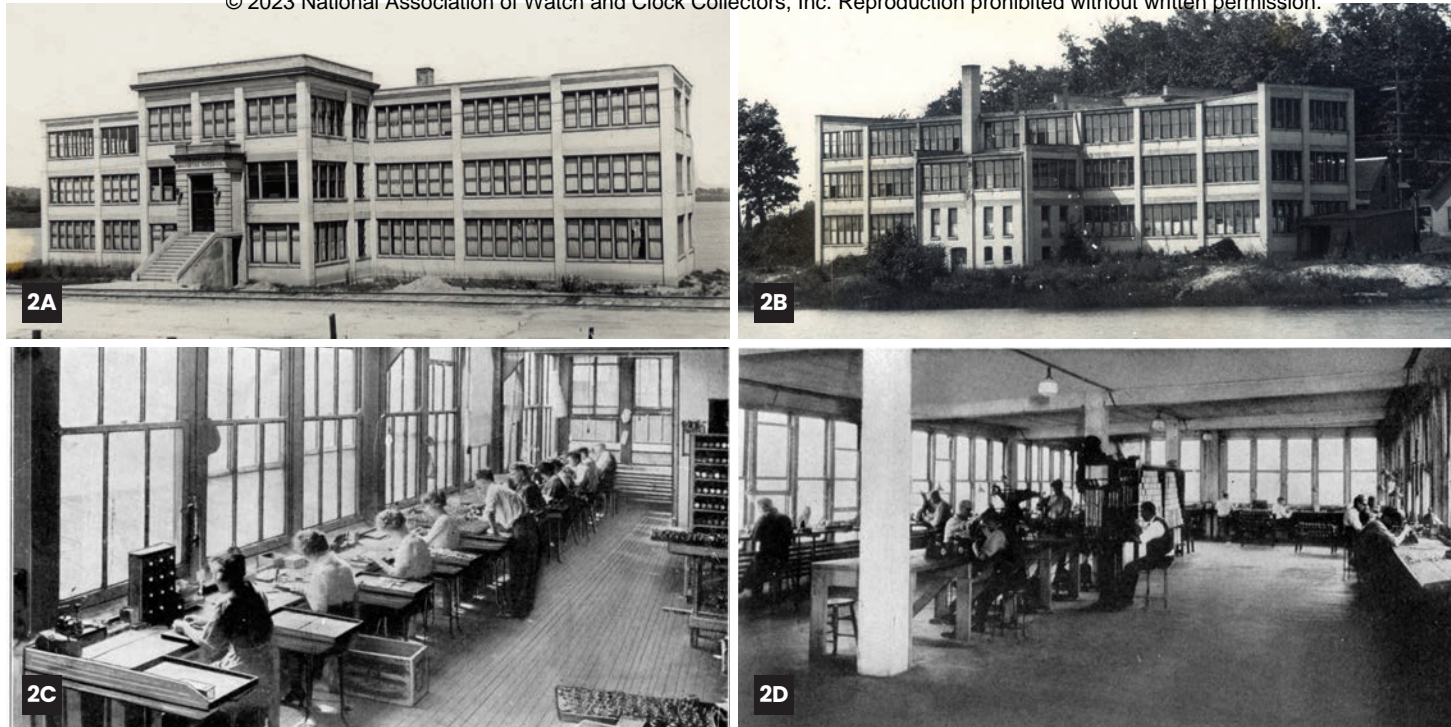


Figure 2A. Front of the former Manistee Watch Co. factory; **B.** Back of the former Manistee Watch Co. factory. **C.** Assembling time stamps for Joslin Manufacturing Co., most likely using former Manistee watch assembly benches. **D.** Benches at Joslin, probably formerly used by Manistee for watch repair or adjusting. USED WITH PERMISSION. COPYRIGHT © 2023 MANISTEE COUNTY HISTORICAL SOCIETY, INC.

so the businessmen were interested in potential new industries for the town. Business leaders were probably aware of the Star Watch Case Co.'s successful start-up in Ludington, 25 miles south of Manistee. It seems probable that Rath suggested that the Star Watch Case Co. could case and help market the watch movements.

The Commercial Club approved Rath's watch factory contract proposal. The *Manistee Daily News* noted that W. F. Baker, Commercial Club president, and William Lloyd, Commercial Club member, had toured the small factory in Chicago that Joseph Bachner had set up, where watch parts were accurately stamped out by using dies that required no subsequent milling. Commercial Club members were impressed by the automatic machinery, particularly an automatic screw-making machine that produced tiny watch screws. The watch output was only limited by the facility's size. Bachner informed Commercial Club members that the new factory would require 80 presses. In Bachner's Chicago factory, there was a display of the model watch that would be produced in the Manistee factory if the contract was approved.⁵

The commission assigned by the city to oversee the park lands reviewed and approved the contract's proposal to raise \$25,000 from bond sales to buy the land on Lake Manistee to build the watch

factory. This proposal was supported by many local businessmen, three of whom later became Manistee Watch Co. directors. The contract was presented to the city council; several aldermen expressed concerns about it. Supporters sensed that it might be rejected, so Alderman Bigge made a motion that a small committee should be created to make recommendations at the next council meeting.

Rath had indicated that they needed \$20,000 to build the factory and \$50,000 to buy the watchmaking machinery. At the next council meeting, contract wording was changed, Rath answered questions, and then the council approved the contract unanimously. The factory's initial plan to employ 250 highly paid, skilled employees was revised down to 100 skilled men and 150 boys and girls.⁶ The *Detroit Free Press* noted, "The Manistee Watch Co. was recently incorporated in Manistee, Mich with a capital of \$100,000."⁷ I contacted the State of Michigan Corporations Division, and they found no evidence that the company was ever incorporated in Michigan.

The contract established the ties between the city and the company:

Rath and Bachner agreed to construct, operate, and maintain in the city of Manistee a watch factory of specified dimensions and equipment and to employ therein [sic]

an average of 250 persons for a period of five years. They also agreed to give to the city a mortgage upon the factory plant and premises to secure the performance of the contract on their part. The city on its part agreed to turn over to them park bonds of the par value of \$25,000, the issuance of which had been authorized by the voters for park purposes. Rath and Bachner were principal officers in the company, and they assigned their interest in the contract to the company.⁸

Bachner had proposed manufacturing a low-cost, fully cased, jeweled pocket watch that would retail for \$5, competing in the marketplace at a price above the dollar watch and just below the higher-jeweled watches. He hoped the lower wages paid in the Manistee area would make the project more cost-effective.⁹

At the April 1910 monthly New York City Jewelers Board of Trade meeting, the Manistee Watch Co. was elected to its membership.¹⁰ This was an important recognition for the company in dealing with various watch and jewelry wholesalers in New York City.

The Company Officers

William L. Rath was the president and director, and Joseph M. Bachner served as manager, secretary, treasurer, and a director who provided technical expertise. Three wealthy local businessmen and political leaders were directors: Thomas J. Ramsdell, Patrick Noud, and F. A. Bingham, who were possibly also investors.

William L. Rath

Rath had emigrated from Germany and settled in Ludington, starting out in a lumber mill and working his way up to local prominence. He served as the mayor of Ludington for a term and was the president of the Ludington Board of Trade. Rath became a part of the firm Weimer & Rath in 1880. He later partnered with Ludington businessman Warren Antoine Cartier to form the lumber company of Rath & Cartier. Rath owned lots of real estate in Mason and Manistee Counties. He also owned property in Chicago, and through these holdings he became a wealthy man.¹¹

Joseph M. Bachner

Bachner emigrated from Europe in 1881, but his background is confusing as there is conflicting information on him. He arrived in New York City, where he spent several years before moving to Chicago in 1886. He stayed there the rest of his life except a few years in Manistee. Prior to his

Table 1. Joseph M. Bachner's US Patents for Stem-Winding and Setting Watch Mechanisms.

US Patent No.	Issue Date	Description
354,083	12/14/1886	Stem Winding and Setting Watch
355,752	1/11/1887	Stem Setting Watch
358,424	4/1/1887	Stem Setting Watch
371,539	10/18/1887	Stem Winding and Setting Watch
741,092	10/13/1903	Stem Winding and Setting Watch

involvement with Manistee Watch Co., Bachner was involved in start-ups of small clock and watch companies. He was awarded nine US watch and clock patents between 1882 and 1903, including five for stem-winding and setting mechanisms (Table 1).¹² Bachner was the company's key technical expert. He designed the watches, was involved with the factory layout, and acquired and set up the watchmaking machinery.

Manistee Watch Co. Factory

Rath investigated many potential locations in Manistee for the watch factory, and he selected a strip of land north of the city on Arthur St. along Lake Manistee that was owned by S. C. Thompson. It was far enough away from Lake Michigan's blowing sand and the dust of lumber mills and locomotives to ensure cleanliness, and it was the only industry north of the city. Workers could take an electric train to the factory. The site had a dock with deep water, allowing ships to easily bring construction materials.¹³ The property sale was completed on June 19, 1908, for "one dollar and other justifications." Thompson and his wife, Marion F., transferred the property to the Manistee Watch Co., and the deed was filed with the Manistee County Register of Deeds on August 5, 1908.¹⁴

Rath and Bachner came to Manistee to oversee the beginning of the factory's construction. Gust Peterson designed the building; he also received the carpentry contract, Nelson and Hanson received the masonry contract, and Lloyd & Smith received the heating, lighting, and plumbing contract. Kahn of Detroit was planning the concrete work, using their patented reinforced concrete. This was the most modern construction technique, making the building virtually fireproof. Brick was used between the windows and very little wood was used except

for window sashes and doors. On June 23, 1908, the steamer *Hennepin* brought crushed stone for the concrete, and lumber was hauled to the site.¹⁵ The factory's design and size were identical to the initial Star Watch Case Co. plant in Ludington.

The building was 150' long, 30' wide, and three stories tall, with approximately 13,000 sq. ft. of useable factory floor space. It had a two-story addition with a basement in the back. It had its own power plant to provide electricity for the machines. The first floor contained heavy presses for stamping plates and wheels. It also had other heavy machinery such as lathes and drills for making barrels, springs, winding wheels, and other parts. The second floor had benchtop machinery for making pinions, staffs, screws, and other small parts. All of the part-finishing work was done on the second floor. The third floor had rooms for movement assembly, inspection, and adjustment. There was a separate plating department.¹⁶

I had several discussions with longtime Manistee resident John Perschbacher about the factory building. He was able to remove some items from it shortly before it was demolished. He said that the building was still in good condition and few interior changes had been made in the 94 years since operations ended in 1911. The main entrance was on the second floor, and the offices were on the second and third floors. There were vaults on all three floors; the first-floor vault was very plain with heavy shelves, probably to hold the machinery dies. The second- and third-floor vaults were much nicer for storing completed or in-process movements and materials or other valuable materials.



Figure 3A. “W. Miller Manistee Mich” stenciled window sash; **B.** Unused white factory brick. AUTHOR’S PHOTOS.

Though the company had gone out of business, many original electric motors and line shafts were still mounted along the ceiling, and many of the original workbenches remained as well. The basement contained the boiler for steam heating; there were radiators along the walls and Modines (steam heaters with electric fans) were mounted high on walls at the end of each room. The factory piping was color-coded: cold water was light blue, compressed air was yellow, and gas was green. The gas lines also contained tags stenciled with “W. Miller Manistee Mich”. The shipping entrance was at the back of the factory. Perschbacher removed a section of window sash that was stenciled on the back “W. Miller Manistee Mich”; Miller ran a hardware store in Manistee. Perschbacher found some unused white bricks in the basement that would have been used as trim on the building’s front (Figures 3A and 3B).¹⁷

In 1924, Joslin Manufacturing Co. leased the empty Manistee Watch Co. factory to build time stamps. The company included some interior factory photographs in its No. 25 catalog that appeared to be the third-floor assembly area. One photograph in the catalog showed women assembling time stamps on workbenches possibly left over from the watch factory (Figure 2C). The second photograph showed the opposite side of the room and employees working at different benches (Figure 2D). These might have been used by Manistee employees when adjusting or working on watches before packaging them for shipment.

The Beginning of Manistee’s Watch Production

A *Manistee Daily News* article headlined “Manistee Watches Will Soon Appear” said that Bachner was the inventor of the Manistee watch. He went to Switzerland in October 1908 to establish contracts for purchasing watchmaking machinery, dials, jewels, and the special alloy hairsprings before returning in January 1909. When he came back, he was pleased with the new factory; it was almost fireproof due to its construction using the Kahn system. The many large windows gave it a light and airy feel. The article referenced “a number of fine machines were made there [Switzerland] to his [Bachner’s] order,” noting that most of the machines were made by Bachner in the past year: “They have a professional finish that makes them look the equal externally which come from world famous factories.”¹⁸

I am dubious about the article’s two claims that Bachner received new watchmaking machinery so quickly from Switzerland and that he had built

most of machinery in the past year. How could he have purchased the new machinery with a limited budget? How could he have constructed machinery with a workforce—his sons—who had limited training?

Bachner understood what watchmaking machinery would be required for a small watch factory. Manistee’s watchmaking machinery budget was limited, so he likely understood that he needed to acquire used equipment, probably from three existing watch factories in Illinois or defunct watch companies in the Midwest. Once the agreement was finalized in May 1908 and funding was secured from investors, Bachner most likely acquired the necessary used machinery and ordered stamping presses. His six sons were machinists and would have been able to get the equipment running and to make dies and fixtures. The new factory was set up with line shafts powering the machinery, which suggests that they were using older hardware.

In the *Manistee Daily News* article “Manistee Watch Called a Perfect Mechanism,” it was reported that the first 100 18-size movements were completed by March 1909 and shipped to Star Watch Case Co. in Ludington, MI, to be cased. A Star Watch Case Co. letter dated May 11, 1909, noted the company had cased 100 movements and declared the watch a “perfect mechanism.”¹⁹ It is more likely that Bachner’s sons had produced a limited number of parts in their Chicago shop that allowed them to assemble these 100 18-size movements in March 1909.

It seems improbable that they built the factory, installed and debugged all the machines, and hired and trained factory employees to begin full-scale watch production in just nine months. I had several email discussions with American industrial watchmaking expert Mike Harrold about this timeline, and he said that 18 months was typically required to properly establish a new factory to produce watches. Harrold suggested there was

Table 2. Michigan Labor Factory Inspections: Manistee Watch Co. Employees

Date	No. Men	No. Women	Total No. Employees	No. Children < 16 yrs.
8/10/1909	49	85	134	3
10/2/1910	81	4	85	37
9/29/1911	42	29	71	1

possibly some preplanning before the Manistee Watch Co. was formed and a temporary factory set up or in operation before or soon after the company’s founding to explain the short start-up time. Bachner’s small watchmaking operation was helpful experience and probably also aided in shortening the factory’s start-up time.

Harrold also noted that successful watch company start-ups in the 1880s required a minimum of \$100,000 to \$150,000. Manistee Watch Co. began 20 years later with possibly \$100,000 in financing—a very small amount for a successful start-up.²⁰ Manistee had planned to spend \$20,000 on the factory and \$50,000 on the machinery, leaving about a financial cushion of \$30,000, which was probably an inadequate amount.

The production of watch parts and possibly the assembly of a few watches probably began in the late summer of 1909, about a year after the company’s founding. By August 10, 1909, the factory had 134 employees (49 men and 85 women) and three children under 16 on its payroll. This gave Bachner a sufficient number of employees to complete final training, to manufacture parts, and to begin watch production.²¹ It would likely have taken several months for production to reach the target of 100 movements a day.

Figure 4. Advertisement for watchmakers and factory hands in the *Chicago Examiner*, August 3, 1910, page 13.

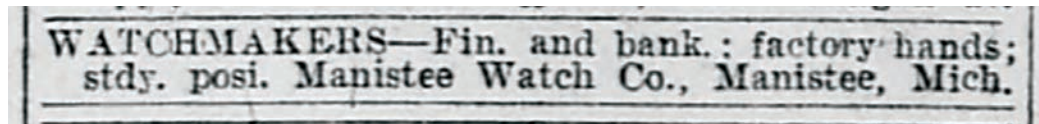


Figure 5. Advertisement for a “reliable jewelry salesman” for Manistee Watch Co., in the *Jewelers’ Circular & Horological Review*, April 20, 1910.

As of August 10, 1909, the Manistee Watch Co. workforce was the largest recorded in the Michigan Annual Labor Reports. The number of employees declined in 1910 and 1911 (Table 2). In 1910, most of the women were replaced with men and children. In 1911, half of the male employees left and were partially replaced with women. The massive turnover, along with a steady decline in the workforce, would have reduced the company's productivity as it had to constantly train new employees. The factory was always needing qualified watchmakers and factory workers, so it placed newspaper advertisements. It would have been fairly easy to travel from Chicago by boat, ferry, or railroad to Manistee.

In 1910, the company advertised in the *Chicago Examiner*: "WATCHMAKERS – Fin. and bank. : factory hands; stdy. posi. Manistee Watch Co., Manistee, Mich." (Figure 4). In 1910, it advertised in the *Jewelers' Circular & Horological Review* twice for "reliable jewelry salesman in each State" and listed the address as "Manistee Watch Co., 607 Masonic Temple, Chicago, Ill." (Figure 5).²² There were three watch factories in Illinois: Elgin, Illinois, and Rockford, and Studebaker was in Indiana, so Manistee may have recruited workers from those factories: "J.L. Minter, formerly with Rockford Watch Co. now traveling for the Manistee Watch Co."²³

In 1910, Manistee was so desperate for skilled workers that it hired 12 Swiss watchmakers who were arrested and later deported after Customs and Immigration agents searched the factory. Government reports identified them as "aliens" hired in alleged violation of the Contract Labor Law. It was both a significant embarrassment and a financial loss for the company, forced to pay \$25,000 to settle the case.²⁴ John Perschbacher commented to me that other Manistee companies had hired undocumented workers, so it was not surprising that federal immigration agents checked the factory.²⁵

In the 1910–1911 *Manistee City Directory*, 71 Manistee residents were identified as working at the Manistee Watch Co. Joseph M. Bachner was cited as the manager, and six of his seven sons were listed as "mach" working there. Louis J. Sauer was listed as "supt," and Bertha Kasten was listed as "forewoman." The directory identified each employee's general job category (Table 3). A list of Manistee employees by name is in the directory's appendix (Table 4). Fourteen employees were classified "watchmkr" (watchmaker), including two women; nine employees were "mach" (machinist); eight employees were "appr" (apprentice, possibly young men/boys); one was a finisher; two were dial

makers; one a "bkpr" (bookkeeper); and four were watchmen. Most of the women were simply listed as "emp" or "employed" so we don't know exactly what they did.²⁶ This confirms that the factory had a very limited technical staff.

The directory data showed an interesting trend in the number of women employees: 85 women were listed in August 1909, dropping to four in October 1910, then increasing to 29 women in September 1911. The 1910 *Manistee City Directory* listed 25 women employees, including Bertha Kasten, forewoman.

Watch Production

The company had initially planned to manufacture an 18-size movement (the standard men's size), a larger size, and two or three smaller sizes as quickly as the dies were produced, but there was no mention of jewel count.²⁷ I have observed only two types of watch movements that were produced: an 18-size, $\frac{3}{4}$ -plate, 7-jewel and a 16-size, $\frac{3}{4}$ -split-plate, 17-jewel.

I contacted a number of NAWCC members seeking movement information, photographs, and serial numbers to document the company's watch production. I have followed watch sales on eBay, auctions, and other sources, and collected information on 163 movements: 64 instances of the 18-size and 99 of the 16-size watches. George Townsend estimated that the company produced 60,000 watches.²⁸ Based on surviving movements

Table 3. Manistee Watch Co. Employees Listed in the 1910 Manistee City Directory.

No.	Listing	Comments
8	appr	apprentice
1	bkpr	bookkeeper
2	dialmaker	
29	emp or employed	mostly women
1	finisher	
1	forewoman	
9	mach	machinist
1	mngr	manager
1	supt	
14	watchmkr	watchmaker
4	watchman	
71		

and their serial numbers, I believe Manistee's watch production was slightly over 24,000 movements: more than 10,000 18-size and 14,000 16-size (Table 5). It appears that Townsend's production estimate was exaggerated, although he was reported to have spoken with Otto Starke Jr. at Star Watch Case Co. Starke may have provided him some production information on the number of Manistee watches that Star Watch Case Co. had cased.

The factory made watches for just over two years. Significant employee turnover and an ever-shrinking workforce make it unlikely that it met the planned production rate of 100 watches per day. Even at its largest, the workforce numbered significantly fewer than the 250 employees that Rath and Bachner had originally planned to hire.

18-Size, ¾-Plate, 7-Jewel Movement

These movements appear to be all open-face, and the backplate was damaskeened (Figures 6A–6D) with at least seven different damaskeened patterns. The watch's stem-winding and setting mechanism exhibits most of the characteristics from Bachner's stem-winding and setting US Patent 741,092, issued on October 13, 1903 (Figures 6E and 6F). The movement with serial number 0003826 had "3826" scratched on the dial plate to ensure that both plates stayed together. The early production movements had a slightly different setting mechanism than later examples. George Townsend examined John Perschbacher's early movement 000355 and noticed it had some differences compared to later movements.²⁹ These all had alloy Breguet hairsprings (Figure 7A) and were signed "Manistee Watch Co. Manistee MICH USA" or "MW Co. Manistee MICH". On early production watches, the serial numbers were hand-engraved on the plates; later, all serial numbers were stamped on the plates.

The majority of these movements had the company's name milled out; collectors refer to them as "cutouts." The cutout movements appear to have been supplied with unsigned dials. The signed movements seem to be roughly the first 1,400 movements; afterward only a few movements have been observed that were not cut out. It has been suggested that cutout movements may have been assembled in 1911 after the company filed for bankruptcy.³⁰

Alloy Hairspring Composition Analysis

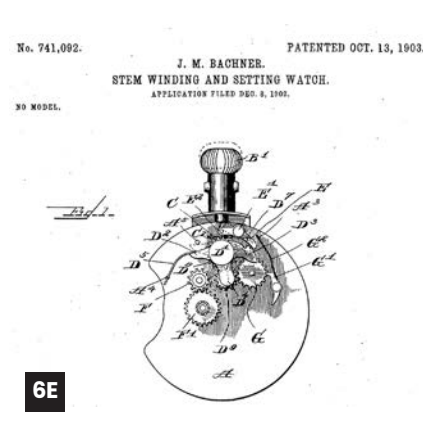
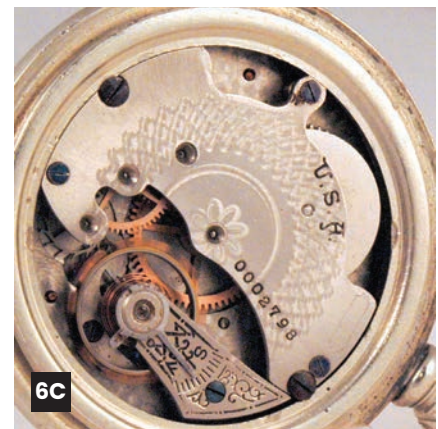
The company used a gold-colored hairspring identified as a "non-ferrous alloy that was as durable as steel" (Figure 7A). I was curious what

Table 4. Manistee Watch Co. Employees Listed in the 1910–1911 Manistee City Directory.

Name	Listing	Name	Listing
Abrainski, Stella	employed	Holmgren, Richard	watchman
Albertson, Mabel	employed	Hughes, Tillie	employed
Altrock, Olga	employed	Jaquet, Alexis	dialmaker
Bachner, Edward	mach	Jaquet, Ernest	appr
Bachner, Frederick	mach	Johnson, John	watchmkr
Bachner, Henry	mach	Kasten, Bertha	forewoman
Bachner, Joseph	mngn	Kaufman, Roy	appr
Bachner, Marcel	mach	King, John	appr
Bachner, Maurice	mach	Kliber, Edward	watchman
Bachner, Paul	mach	Kott, Mary	employed
Bernier, Philomena	employed	Kowalski, Jennie	employed
Beyer, George	watchmkr	Kowalski, Mary	employed
Bialik, Ethel	employed	Kowalski, Theresa	employed
Bickell, Harry C.	bkpr	Krezesinski, Frances	employed
Blair, Clarence	employed	Larsen, Osmund	watchman
Boltrell, Fred	finisher	Loken, Otto	watchmkr
Boulanga, Anna	emp	Manhei, Helen	employed
Brzeznik, Stella	emp	Mudgett, Mae	watchmkr
Chick, Kate	employed	Muszynski, Nora	employed
Clausen, Harvey	appr	Nelson, George	appr
Coddington, AW	watchmkr	Nordstrom, Christine	employed
Deschaine, Charles	mach	Parmalee, H	watchmkr
Deschaine, Frank	watchmkr	Ranz, Paul	appr
Descombes, Albert	watchmkr	Robertson, Flavia	employed
Descombes, Bertha	watchmkr	Russell, Frank J.	watchmkr
Descombes, Charles	watchmkr	Schimke, Otto	appr
Dummer, Theresa	employed	Schleif, Mattie	employed
Engelman, Emma	employed	Sherbert, Axel	watchman
Etchokin, David	watchmkr	Siuda, Vanda	employed
Fly, Michael	employed	Wall, Eva	employed
Frederickson, Ethel P	employed	Wall, Lizzie	employed
Gray, Magdena	employed	Wilson, Percy	mach
Groleski, Joseph	appr	Wirtz, Jean	watchmkr
Hauser, Charles	watchmkr	Zaborowski, Josephine	employed
Hawes, Harry	mach	Zawacki, Mary	employed
Heritieu, Emile	dialmaker		

Table 5. Manistee Watch Co. Watch Production Analysis

Serial Number Range	Movement Type	Lowest Serial Number	Highest Serial Number	18-Size Movements with Company Name Not Cut Out	18-Size Movements with Company Name Cut Out	No. 000 Prefix	No. 00 Prefix	No Prefix No. 00
1 - 10,500	18-size 7-jewel	10	10281	12	52	58	6	
25000 - 31000	16-size 17-jewel	00-25244	00-30289				55	
30000 - 40000	16-size 17-jewel	30139	39252					44
Total								163



Figures 6A and B. An 18-size movement with the company name and accompanying signed dial; **C and D.** An 18-size movement with the company name cut out and unsigned dial. PHOTOS IN 6A–D COURTESY OF LONNIE ROBERTS. **E.** US patent no. 741,092 for Bachner’s stem-winding and setting watch. **F.** The 18-size dial plate with “3826” scratched on it. AUTHOR’S PHOTO.

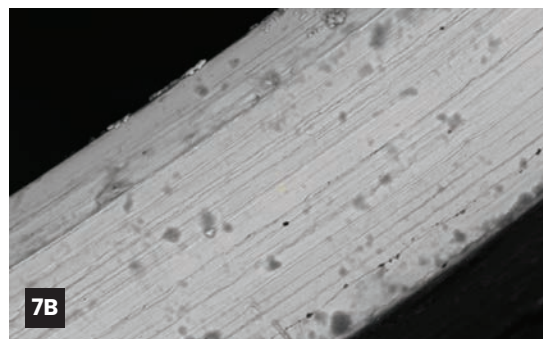
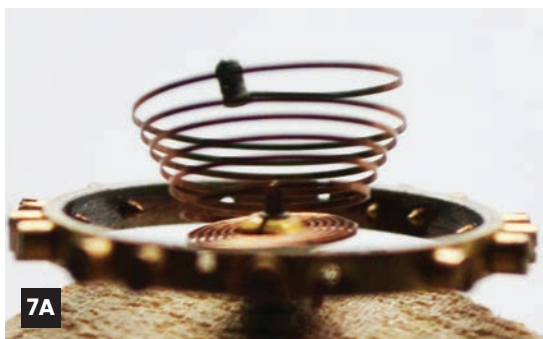


Figure 7A. Close-up photo of the alloy hairspring. AUTHOR’S PHOTO. **B.** SEM 3000x magnification photograph. COURTESY OF DANIELLE RICKERT AND MIKE KOSUT, TITAN METALLURGY.

its composition was. I contacted Titan Metallurgy LLC in Oak Park, MI, and asked if the company could analyze and determine the hairspring alloy's composition. Danielle Rickert, chief engineer, offered the company's scanning electron microscope for no charge. Mike Kosut, metallurgist, performed the test.

The analysis revealed an alloy of 93.6% copper and 6.4% tin, in other words, high-copper-content bronze. Bronze is usually 88% copper and 12% tin. This alloy hairspring was typically used for

low-cost Swiss alarm clocks. A photograph was taken of the hairspring at 3000x magnification (Figure 7B). Striations are visible on the hairspring. I asked Rickert if they were original or artifacts of the analysis. She confirmed they were original and were probably die marks left as the wire was drawn through a series of decreasingly smaller diameter dies to achieve the desired thickness. She said the spots on the hairspring were various types of surface contamination.³¹



Figure 8A. An open-face 16-size, 17-jewel movement; **B.** A hunting 16-size, 17-jewel movement. PHOTOS IN 8A–B COURTESY OF ARNIE VANTIEM. **C.** A bridge with a movement serial number; **D.** No. “468” scratched on the bottom of the balance cock. AUTHOR’S PHOTOS.

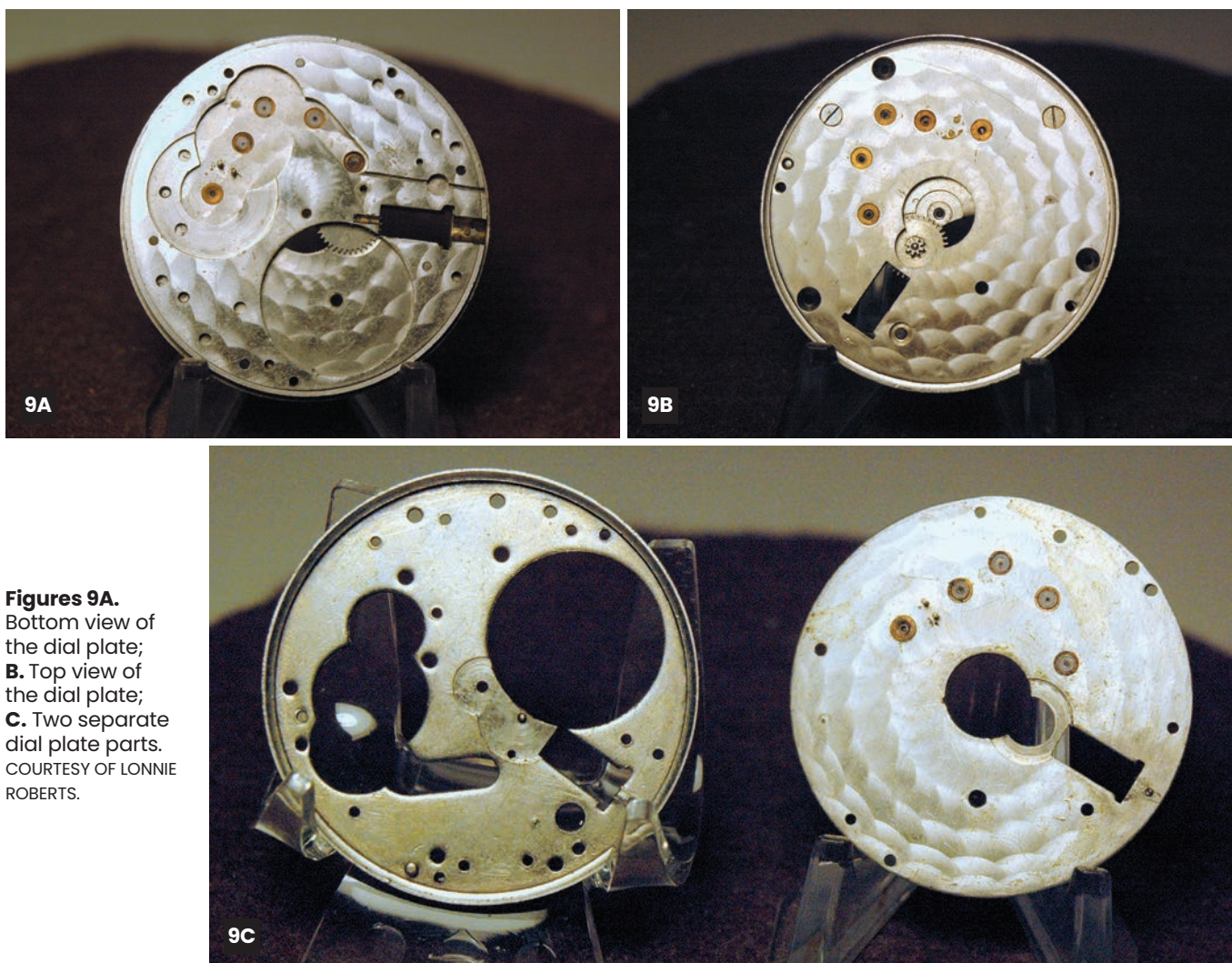
16-Size, $\frac{3}{4}$ -Split-Plate, 17-Jewel Movements

The 16-size movements all appeared to have 17 jewels and were all signed “Manistee Watch Co. Manistee MICH” “17 Jewels”. There were two movement configurations: hunter and open-case (Figures 8A and 8B). The “17 Jewels” text was stamped on the hunter movements near the serial number, while on open-face movements “17 Jewels” was on the other side of the barrel. The hunter movements appeared to be significantly more popular than the open-face ones based on the number that have survived. They all had micrometer regulators; however, many micrometer regulators broke off over time. The plates were damaskeened with at least two different, simple patterns. Some of the early watches have the alloy Breguet hairspring movement serial numbers (0025000–0029000), and the later watches have

blued steel Breguet hairsprings. Some of early bridges were numbered to match other parts, ensuring that they stayed together. Figures 8C and 8D show the bridge with serial number 0029468 and “468” scratched on the bottom of the balance cock.

The movements have some unique characteristics:

- The dial plate is actually two plates screwed together (Figures 9A–9C).
- Jewels are pressed in settings rather than screwed in.
- The movements have a traditional 15-jewel pattern. The 16th jewel was the backplate center wheel while the center wheel’s dial plate was not jeweled, and the 17th jewel was a cap jewel on the escape wheel. See the close-up photograph showing the escape wheel cap jewel in Figure 10.



Figures 9A. Bottom view of the dial plate; **B.** Top view of the dial plate; **C.** Two separate dial plate parts. COURTESY OF LONNIE ROBERTS.

- Movements have either 00 or nothing at all preceding the serial number. The earlier observed movements (beginning with No. 0025244) have the 00, but there are serial number ranges with movements with and without the 00 that overlap each other. It appears that movements with serial numbers above 30,000 have no 00 preceding the number.

I contacted three NAWCC watch collector members regarding the Manistee Watch Co. movement finish quality and potential movement running issues compared to products from other contemporary watch companies. Fred Hansen commented, "I'm not too knowledgeable about Manistee myself but have had a few over the years and would agree that they aren't particularly well finished. I'd probably put the 16-size 17-jewel Manistee somewhere above the better New York Standard products, but somewhere below the best grade (17- and 19-jewel) Ingersoll Trenton movements. The 15-jewel Ingersoll Trenton might be a fair comparable for overall quality."³²

Arnold VanTiem has repaired watches for more than 40 years and is an American

Watchmakers-Clockmakers Institute (AWCI)-certified watchmaker. He said that he thought Manistee's decision not to jewel the center wheel's backplate (dial plate) on its 16-size 17-jewel movements was technically poor. The center wheel receives the highest torque as it is closest to the barrel and could cause the dial plate bushing to wear, which could result in wobbling that prevents the wheels from meshing properly, eventually stopping the watch. He said that he's seen a number of wristwatches with this jewel combination that have problems. He believes it would have been better to replace the dial plate bushing with the 17th jewel rather than put a cap jewel on the escape wheel.³³

Jerry Rogers shared that he worked on Manistee 16-size movements many years ago when he lived in Hart, MI, just south of Ludington. He remembered there being problems with the stem-wind mechanism: over time the gear teeth ground on each other, as they were not robustly made.³⁴

I found that Norris, Alister & Co. in Chicago listed 16-size, 17-jewel watches in its 1911 catalog; both hunting and open-face movements were priced



Figure 10. Close-up photo illustrating the cap jewel on the escape wheel. COURTESY OF LONNIE ROBERTS.

16 SIZE THIN MODEL.

MANISTEE MOVEMENTS

17 JEWEL PENDANT SET. Hunting, Pendant Set\$11.70
Open Face, Pendant Set..... 11.70
Very attractive in appearance, double sunk, arabic or roman dial with marginal figure, exposed pallets, compensating balance wheel, Breguet steel hair spring, polished micrometric patent regulator, double roller escapement, with steel escape wheel, exposed winding wheels.
All Manistee Movements are guaranteed by the factory from original defect.

Norris, Alister & Co.
Chicago, Ill.
1911

Figure 11. Manistee advertisement from Norris, Alister & Co., 1911.

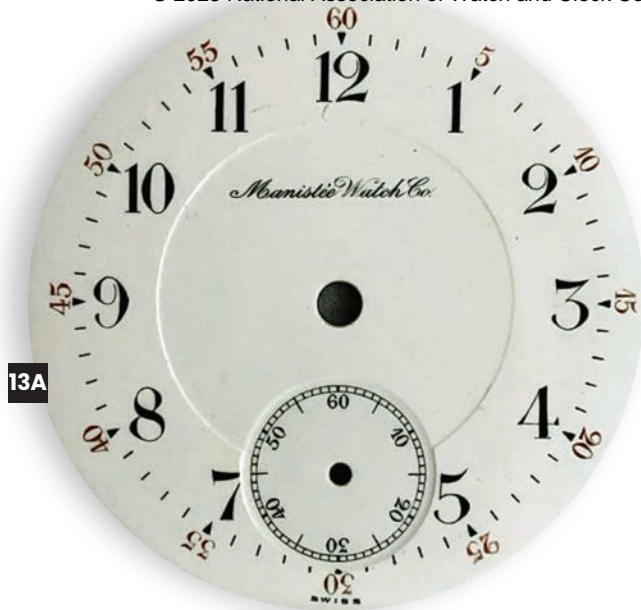
MANISTEE WATCH CO.—17 JEWELS.

Nickel, 17 jewels, double sunk dial, with marginal figures, exposed pallets, compensating balance wheel, Breguet steel hairspring, polished micrometric patent regulator, double roller escapement with steel escape wheel, pendant setting.

No. 2373 Hunting ... \$20.75
No. 2374 Open Face.. 20 75

Figure 12. Manistee advertisement in S. F. Myer Co.'s 1912 Annual Illustrated Catalogue: Wholesale List Prices, page 177.

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at \$11.70 each (Figure 11). This indicated that not all of the watches were shipped to the Star Watch Case Co. to be cased. The advertisement noted the movements had Breguet steel hairsprings rather than alloy hairsprings, so they were probably later production movements. A similar advertisement for Manistee Watch Co. 16-size movement was in the 1912 Norris, Alister & Co. catalog.³⁵

S. F. Myer Co. in New York City listed the 16-size, 17-jewel watches in its 1912 catalog; both hunting and open-face movements were priced at \$20.75 each (Figure 12).³⁶ It is notable that the movements were priced \$9 more than Norse, Alister & Co. in Chicago.

Dan I. Murray, broker, placed an advertisement in the April 1, 1914, *Jewelers' Circular & Horological Review*:

\$8.15 FOR 17 jeweled nickel Manistee movements, fit in 16 size O.F.S.B. & 20 year filled cases, \$9.40 for 16 size hunting, there are just 600 of these watches left from stock brought from bankrupt stock of Manistee Watch Co., Manistee; they are good watches, as fine timers as a man ever carried; send cash with order unless well rated; if rated or good references send cash on arrival; order quick before too late.³⁷

It is notable that he acquired a bulk lot of watches, and he priced hunting movements \$1.25 higher than open-face movements.

16-Size Dials

Some 16-size dials were imported from Switzerland, as they have "SWISS" at the very bottom (Figures 13A–13C). Manistee attempted to set up watch dial manufacturing in 1909³⁸ and had two dial makers listed in the 1910 *Manistee City Directory*. The dials have Arabic numerals and either red or blue ordinal numbers. They are double-sunk, and many have slight coloring on them. The chapter ring on some dials is blue or green. Many loose 16-size dials have turned up, so some dials may have been leftover when the company went bankrupt.

Figure 13A. Dial with Arabic numerals, red ordinal numbers, and "Swiss" at the bottom; **B.** Dial with Arabic numerals, blue ordinal numbers, and "Swiss" at the bottom; **C.** Dial with Arabic numerals, blue chapter ring, and "Swiss" at the bottom. COURTESY OF RHETT LUCKE.

Bankruptcy and a Lawsuit

On March 20, 1910, a \$5,994 note was presented to the Manistee First National Bank from Star Watch Case Co. on behalf of Manistee Watch Co. Unfortunately, there appeared to be no funds supporting it. The bank contacted William L. Rath, Manistee Watch Co. president and also a Star Watch Case Co. investor. He instructed the bank to hold the note for one year before attempting to cash it. On March 24, 1911, the note was still not supported financially, so Manistee First National Bank filed a lawsuit against Star Watch Case Co. and Manistee Watch Co.³⁹

Jewelers' Circular & Horological Review reported on July 27, 1911, that Judge Denison of the US District Court in Grand Rapids, MI, appointed Michigan Trust Company as the Manistee Watch Co.'s receiver: "The petition was filed by four creditors, who allege the company has liabilities amounting to \$125,000, and that it committed an act of bankruptcy when it paid a judgement to one creditor and gave to others checks that were protected."⁴⁰ In the same article the company officers denied that it was insolvent and indicated that they would fight the proceeding. The *Manistee Daily News* identified the four creditors: Fowler, McDonnell, Rosenberg, and McPhail along with Joseph Bachner, his wife, and six sons.⁴¹ Later the City of Manistee filed a cross-petition against the Manistee Watch Co. for the \$25,000 in bonds it had approved.

Factory Activities between the Bankruptcy Filing and the Final Hearing

Three articles from *Manistee Daily News* provide information on the factory goings-on in the year between the bankruptcy filing and the final resolution of the matter:

A dispatch to the News this afternoon from Grand Rapids states that the Manistee Watch Company today applied to the federal court for the appointment of a receiver. This is apparently a move on the part of the company to meet the application of certain creditors for an order of involuntary bankruptcy. If the company can show that it is solvent it will escape the order in bankruptcy and a receiver may be appointed on its own motion who will effect a reorganization.

It is to be hoped that the bankruptcy proceedings brought against the Manistee Watch company will result in a liquidation and reorganization which will permit of

operating the company's fine plant and making a success of the business. It is not at all improbable that such will be the case.

It is said that none of the few watch companies in this country achieved success until after the third reorganization. We cannot vouch for the statement, but it contains a measure of comfort at this time, though we will expect one reorganization to suffice in our case.⁴²

Though the factory closed on July 24, 1911, local investors reportedly raised \$14,000 and the factory reopened on August 12, 1911. R. G. Peters, a wealthy Manistee businessman who owned a short-line railroad and was involved in lumber and salt-mining, was apparently leading a group to save the factory:

The city council had under consideration last evening an application for a loan from the Manistee Watch Company. Two letters signed by R. G. Peters who has been in charge of the plant for several months, were submitted, setting forth the facts. It appears that Mr. Peters and several local stockholders were managing the company.

They have kept the factory running with 70 hands employed, paying about \$100 a day in wages. But not all the liabilities have been met, and a sum of money is needed now to permit of operating for a short time until the revenues of the business are sufficient, not only to meet operating expenses, but also to clear up some remaining debts.⁴³

R. G. Peters led the effort to raise funds to reopen the factory, and he reduced the company's debts from \$125,000 to about \$50,000. He attempted to get more capital, but abandoned his effort and dismissed most of the workforce as the company was in such poor financial condition that it was better to allow the bankruptcy proceedings to continue.⁴⁴ I believe that Peters must have finally realized that the pocket watch market had rejected the company's offerings. It would have required significant capital to both pay off the existing debt and the additional expense of developing a more marketable watch. The *Manistee Daily News* reported, "All but a few of the employees of the Manistee Watch Company were dismissed at the close of work last evening."⁴⁵ The *Manistee Daily Advocate* on December 22, 1911, reported, "The Manistee Watch Co. will pay off its employees Wednesday morning at Hans Hansen's news stand at nine o'clock."⁴⁶

The company's major mistake was introducing the cheap 18-size watch that the jewelry trade had no interest in, and the company was severely handicapped to continue.⁴⁷ Its 16-size, ¾-plate, 17-jewel model did not distinguish itself in design or quality versus other models on the market.

Bankruptcy Hearing

The bankruptcy hearing was heard in the US Circuit Court in Grand Rapids, MI. The City of Manistee was represented by Norris & McPherson from Grand Rapids, and the Trustee (Michigan Trust Co. for the Manistee Watch Co.) was represented by Cleland & Heald from Grand Rapids. On July 15, 1912, Judge Clarence Sessions approved the company's bankruptcy petition and denied the City of Manistee's cross-petition as the court believed that the city illegally approved the monies. He ruled that the \$25,000 in bonds was not a lien on the property.⁴⁸

Jewelers' Circular & Horological Review on August 21, 1912 reported, "Samuel L. Winternitz & Co. purchased the machinery, fixtures, and tools of the defunct Manistee Watch Co., Manistee, MICH, for \$3800 and will move it to Chicago for disposal by auction."⁴⁹ William Rath purchased the factory building at auction in September 1912.

Fate of the Employees

Searching the 1913–1914 *Manistee City Directory*, I noticed that all of the technical employees (except one "mach" and one "watchmkr" listed in the 1910–1911 *Directory*) were no longer listed. There were only 23 former employees listed as living in Manistee. Three women originally listed as "emp" were listed as "mach oper," so they may have been either machine operators at the Manistee Watch Co. or gained machinery skills that they used to find employment afterward. The Bachner family returned to Chicago.⁵⁰ It is likely that most employees left after receiving the final payout in December 1911, and others may have started leaving earlier when the bankruptcy petition was filed in July 1911.

Why Did the Manistee Watch Co. Fail?

By 1909 the pocket watch movement manufacturing industry had matured. The market was dominated by large, well-financed companies, and smaller or marginally financed companies failed. The Rath and Bachner business plan of hiring lower-wage Manistee workers to produce a lower-cost, lower-jewel content pocket watch could not compete with the volume and quality of timepieces made by the larger, better-financed watch companies.

The Manistee Watch Co. was woefully underfinanced; its original financing was only \$100,000. It should have had at least \$200,000 to successfully survive the initial factory setup and product introductions, and still have funding to make changes in response to the market's acceptance or rejection of its initial products.

The marketplace rejected Bachner's lower-cost 18-size, 7-jewel pocket watch. Its 16-size, 17-jewel watches did not distinguish themselves for quality or design from the other companies and probably received little acceptance in the marketplace. It might have been better to have introduced a 16-size watch with a conventional 15-jewel model and a 19-jewel model (center wheel fully jeweled and cap jewels on the escapement) as they would have been more competitive in the marketplace. It offered only two men's watch models (18- and 16-sizes) and had nothing for women.

The company's financial problems increased when it had to pay a \$25,000 fine to settle the case involving the illegal hiring of Swiss watchmakers. The company's technical resources were minimal: the skills of Joseph Bachner, his sons, and a few experienced watchmakers. It was continually trying to recruit experienced watch factory workers to come to Manistee. The workforce that Manistee did have exhibited significant turnover, which, combined with the company's difficulties in hiring experienced personnel, severely hampered watch production.

An appendix to this article covering further details of the Manistee Watch Co.'s start-up is available at nawcc.org/publications/watch-clock-bulletins/bulletin-addenda/. I would be interested in hearing from NAWCC members who have information on Manistee Watch Co. or Manistee watches. Please contact me via editor@nawcc.org.

Acknowledgments

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About the Author

Andy Dervan began collecting antique clocks in 1997 and joined the NAWCC. He found clock collecting to be a fascinating hobby, and his principle collecting interest is 19th- and 20th-century weight-driven clocks, particularly banjo clocks. Researching the manufacturing histories of various makers and companies was more challenging than simply collecting; he has published many articles in the *Watch & Clock Bulletin*, *American Clock and Watch Museum Electronic Timepiece Journal*, and *Clocks Magazine*. In 2011, he retired from DuPont Performance Coating, volunteered at The Henry Ford, and continues his horological research. In 2011, he became an NAWCC Fellow, in 2016 he was awarded the NAWCC's James W. Gibbs Literary Award, and in 2017 he became an NAWCC Silver Star Fellow.

The Atlantic Clock Works of Birmingham, England, Revealed

Part 6: One-Day “Caledonian” Movement

BY PETER GOSNELL (UK)

In Parts 2–5 of this series, investigations have focused on a family of 8-day spring-driven movements and their cases now believed to have been produced by C. & H. Cartwright at the Atlantic Clock Works from 1867 to 1892. However, key point 22 (extracted from *The Ironmonger and Metal Trades’ Advertiser* [IMTA] of April 1880 and presented in Part 1 of this series) stated that “Mr. Cartwright’ had a cheap one-day duration wooden cased cottage or kitchen clock in hand, that was expected to end the reign of German examples of the same style of clocks, costing less than the original American examples.”¹ What are now believed to be these 1-day duration Cartwright-made movements have been found in a cottage clock and in kitchen wall clock cases.

1-Day Duration “Caledonian” Timepiece Movement

Figures 1A–1D show four views of the 1-day duration spring-driven timepiece movement with the name “CALEDONIAN” punched on the bottom of the front plate (Figure 1E). This movement, now called the “1-day Caledonian” (“1-d.C”), has a 5-*arbor* train, with the second *arbor* also being the minute *arbor*, and it has plates that measure 2 ¼” high x 2” wide, with the distance between the plates just 1 ½”. Connections that link this small “1-d.C” movement to what are now (believed) to be C. & H. Cartwright 8-day spring-driven striking “The Caledonian Registered” movements (investigated in Part 5 of this series²) have now been found:

- Both the “1-d.C” movement, name-punched “CALEDONIAN”, and all larger 8-day striking movements with “THE CALEDONIAN REGISTERED” punched onto their front plates share the word “Caledonian” either as a single word name or as part of a three-word name with two independent punches used for each.³
- From measurements taken and observations made with the aid of a microscope (and within the limits of movement availability), the featured “1-d.C” movement as well as one available “The Caledonian Registered No. 4” (“T.C.R.4”) movement, three available “The Caledonian Registered No. 5” (“T.C.R.5”) movements, and three available “The Caledonian Registered Vienna” (“T.C.R.V”) movements all had the four spokes on their cannon wheels created with the same punch and die set. Three available examples of the now-believed earlier “The Caledonian Registered No 3” (“T.C.R.3”) movements were also inspected, and all had the four spokes on their cannon wheels created with a slightly different (presumably earlier generation) punch and die set. Examples of these “The Caledonian Registered” movement models mentioned above have all appeared previously in Part 5 of this series.⁴
- Again from observations made with the aid of a microscope, the featured “1-d.C” movement and one “T.C.R.4”, one “T.C.R.5”, and one “T.C.R.V” movement were all found to have exactly the same small “D” factory mark punched onto their front plates.⁵ This “D” mark on the “1-d.C” movement visible in Figure 1E can be seen enlarged in Figure 1F. A comparable image of the same “D” on the one “T.C.R.V” movement can be seen in Figure 2 for direct comparison.

Connections 2 and 3 above now confirm with some certainty that the featured “1-d.C” movement example and later “T.C.R.4”, “T.C.R.5”, and “T.C.R.V” movement models were all manufactured in the same workshop, now believed to be the Atlantic Clock Works, at around the same time. A connection

1A

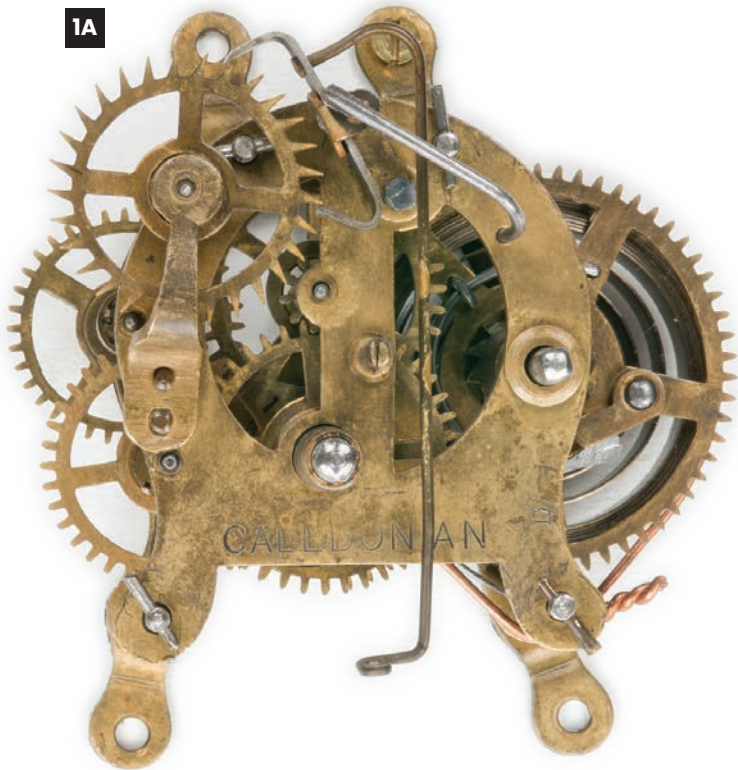


Figure 1A. Front of "1-day Caledonian" movement. AUTHOR'S PHOTO.

1B

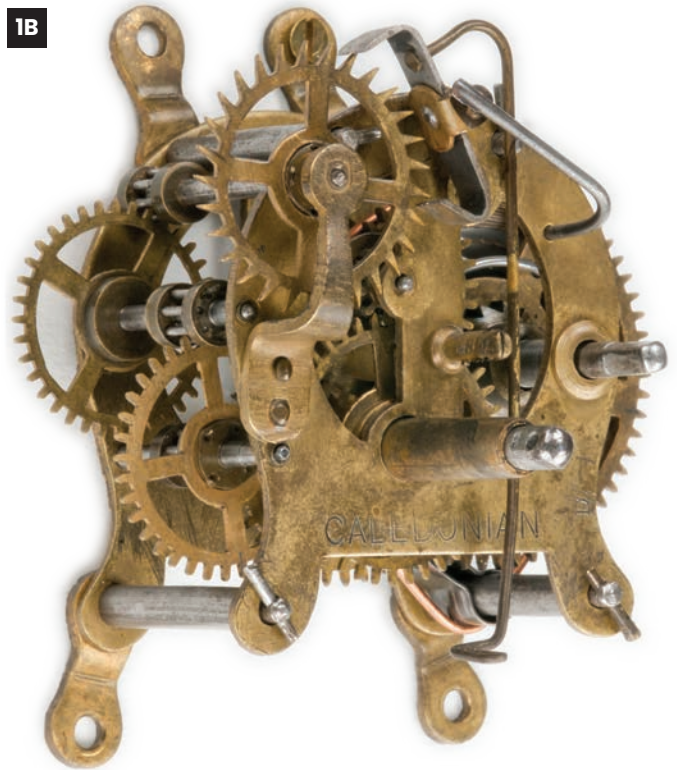


Figure 1B. Left-front view of the movement in Figure 1A. AUTHOR'S PHOTO.

1C

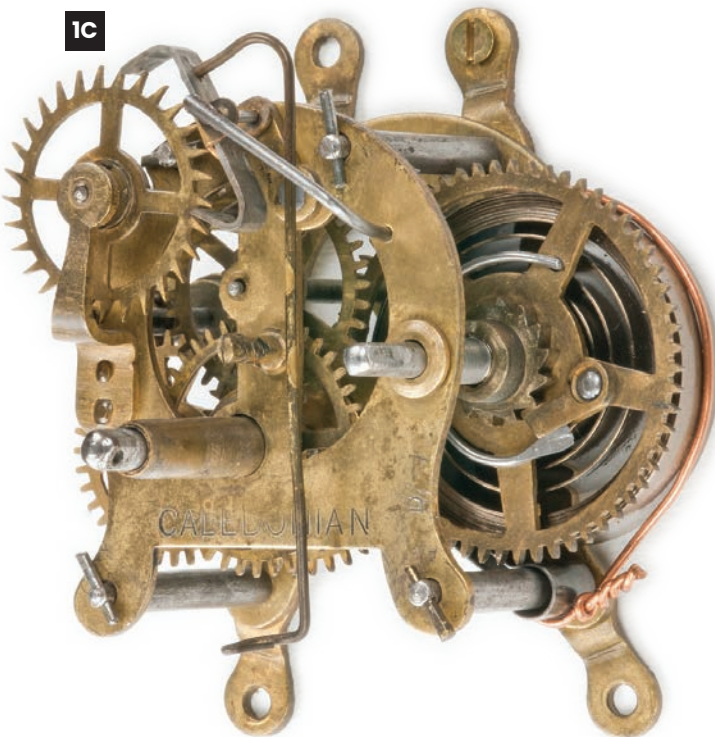


Figure 1C. Right-front view of the movement in Figure 1A. AUTHOR'S PHOTO.

1D

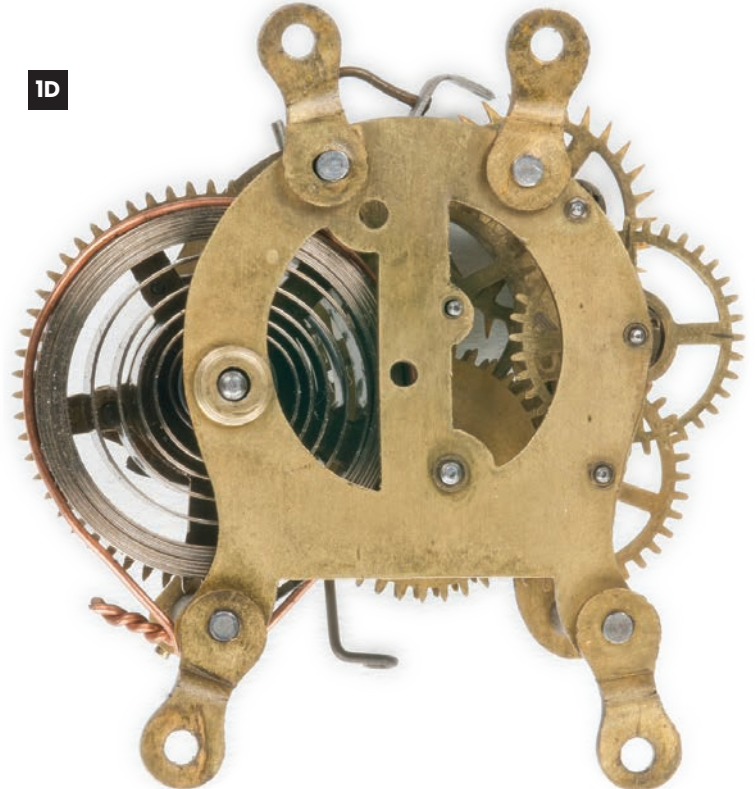


Figure 1D. Rear view of the movement in Figure 1A. AUTHOR'S PHOTO.



Figure 1E. Punched "CALEDONIAN" (also with small "D" on the right) from the movement in Figure 1A. AUTHOR'S PHOTO.



Figure 1F. Enlargement of the punched "D" mark seen in Figure 1E from the movement in Figure 1A. AUTHOR'S PHOTO.



Figure 1G. Small drop-dial kitchen case containing the movement in Figure 1A. AUTHOR'S PHOTO.



Figure 1H. Another image of the case in Figure 1G with the movement in Figure 1A now visible. AUTHOR'S PHOTO.



Figure 1I. Rear of the case in Figure 1G with nailed-in bent wire hanger visible. AUTHOR'S PHOTO.

between the featured "1-d.C" timepiece movement and a one-day Seth Thomas (Plymouth, CT) timepiece movement, with an example of the latter shown in Figure 3, has also been established.

In his April 1998 *Bulletin* article "Seth Thomas 9' Cottage Clocks Stage II (1865–1871)," Owen H. Burt named this Seth Thomas one-day timepiece movement the "5B-D" model and gave it a production date of 1871–78.⁶

When comparing the Seth Thomas "5B-D" example in Figure 3 to the featured "1-d.C" movement in Figure 1A, these two movements look very similar.

Investigations of the same two "1-d.C" and "5B-D" examples side-by-side on the bench revealed that both movements have the same-sized plates that are the same distance apart. Both have identical train layouts and wheel counts, except for their escape wheels that have a different number of teeth to accommodate different pendulum length applications. The only distinctive difference between the two is that the bottom middle edges of the plates on the "1-d.C" movement have been extended to make space for "CALEDONIAN" punched on the front plate (easily observed by comparing Figure 1A to Figure 3). This data therefore confirms that the now (believed) Cartwright "1-d.C" movement, produced at least sometime after 1880 (from key point 22 above) but possibly even later than that as suggested from connections 2 and 3 above, was copied directly, except for one small plate design alteration, from the earlier Seth Thomas "5B-D" movement.

While the "1-d.C" and "5B-D" examples were side-by-side on the bench, the author also noted that the overall build quality of the Seth Thomas "5B-D" example was impressive for such a small movement. The construction quality of the "1-d.C" by comparison was somewhat cruder, perhaps suggesting the (believed) Atlantic Clock Works may have found it difficult to adapt to producing a much smaller movement compared with the full-sized, 8-day striking movements they had been used to manufacturing. The difference in scale of the "1-d.C" movement and "T.C.R." movements can be fully appreciated in Figure 4.



Figure 2. Enlargement of a punched "D" mark found on a "The Caledonian Registered Vienna" movement. AUTHOR'S PHOTO.

To date, only four "1-d.C" movement examples are known to exist, perhaps suggesting they were either never produced in large numbers or perhaps were never very successful, so many have now been scrapped. Two were found in the same design of a small drop-dial kitchen wall clock case; one was in a small cottage clock case that previously appeared in the *Bulletin*; and the last example was seen in photos of a scrapped movement with a large quantity of other scrapped movements jumbled together in a cardboard box but with the "Caledonian" punched name clearly visible.

Figures 1G and 1H show the case containing the "1-d.C" movement in Figures 1A–1F. This small drop-dial kitchen wall clock case is only 19 ½" high with an 8" diameter dial and is made from pine veneered with rosewood. It has a wooden dial surround with an ebonized molded edge and has an upward-hinged, full-width trunk door. These are all now familiar case details seen before on (believed) C. & H. Cartwright larger drop-dial cases that have featured in previous parts of this article series. This case also has a small, nailed-in bent wire hanger

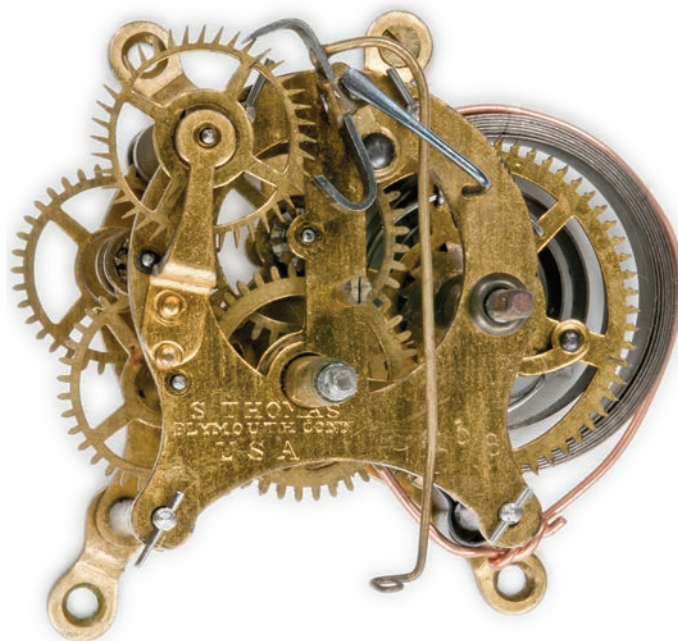


Figure 3. Front of a Seth Thomas "5B-D" movement example. AUTHOR'S PHOTO.

(Figure 1I) that has again been identified as a detail found on (believed) C. & H. Cartwright-made cases and categorized as Significant Detail A, first in Part 3 of this series.⁷ Notice in Figures 1G and 1H how the full-width trunk door has a decorative pressed brass panel behind the glass instead of plain glass or a tablet. The second small drop-dial kitchen wall clock case with a "1-d.C" movement is known just from comprehensive photographs and appears identical to the example above except for minor differences to the decorative plinth at the bottom of the case.

Due to the importance of the only known example of a "1-d.C" movement within a small cottage clock case, the same two photographs that illustrated this movement and case in a previous *Bulletin* article by A. Lee Smith titled "Cottage Timepieces and Their Movements" are being reprinted here for the convenience of the reader as Figures 5A and 5B.⁸ Unfortunately, the whereabouts of this clock are still unknown even after a request was posted in a past Research Activities and News column of the *Bulletin* encouraging the new owner to come forward.⁹ Notice how this second "1-d.C" movement example (Figure 5A) appears identical to our first featured example shown in Figures 1A–1D except for more escape wheel teeth to accommodate a shorter pendulum length. Perhaps just discernible from our

reprinted Figure 5A (or perhaps more apparent in the original *Bulletin* illustration) is how this second "1-d.C" movement also has the same small "D" punched on the front plate in the same location as on our first featured "1-d.C" movement (Figures 1E and 1F). Note, from Figure 5B, how the cottage clock case also has a pressed brass panel behind the door glass just like the drop-dial kitchen wall clock in Figures 1G and 1H.

All this information presents a convincing case that these two kitchen wall clocks and one cottage clock with "1-d.C" movements were the products of C. & H. Cartwright at the Atlantic Clock Works sometime after 1880 (from key point 22 above), most likely later than that date but before 1892, when all production came to an end at the Atlantic Clock Works (covered in Part 1 of this series¹⁰). It is also appropriate to emphasize at this point that not only do connections 2 and 3 above link the "1-d.C" and later "T.C.R." movements, but they also form a connection to the rest of the same family of movements¹¹ previously investigated in Parts 2 to 5, where it was shown that each successive model had been a development of the previous.

Part 7 will look at C. & H. Cartwright's late-production Anglo-American clocks made from 1892 to 1901.

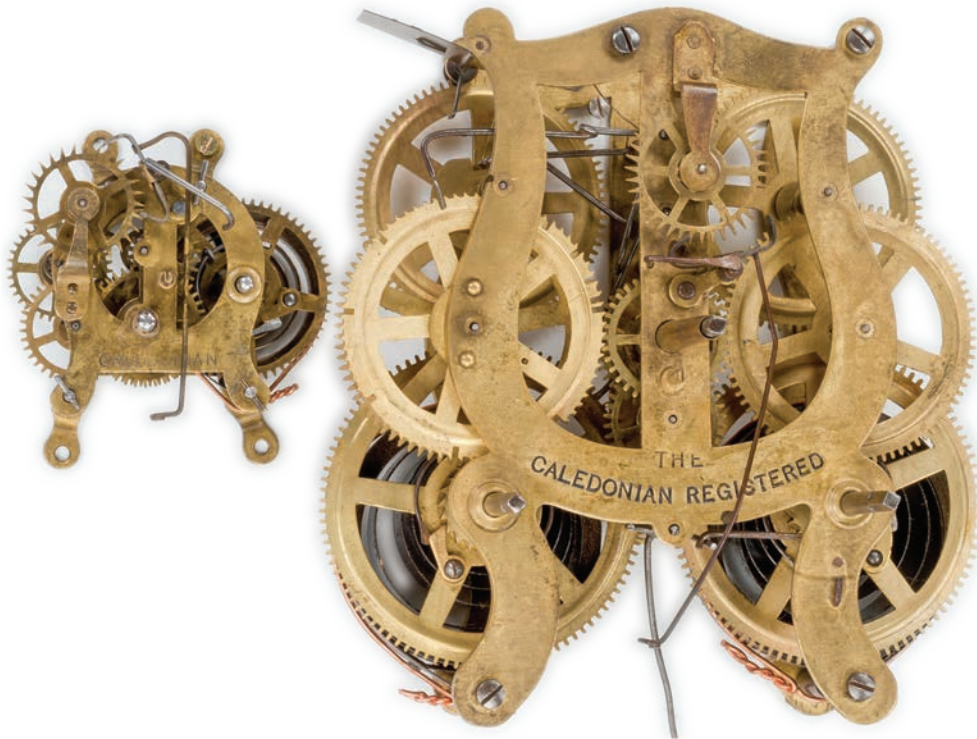


Figure 4. Front of "1-day Caledonian" and a "The Caledonian Registered No. 5" movements side-by-side for direct comparison. AUTHOR'S PHOTO.

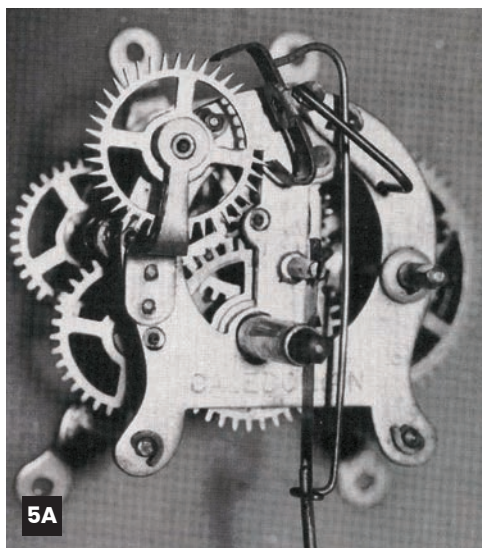
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1. Peter Gosnell, "The Atlantic Clock Works of Birmingham, England, Revealed: Part 1: Charles Cartwright & Sons," *Watch & Clock Bulletin* 65, no. 461 (January/February 2023): 42.
2. Peter Gosnell, "The Atlantic Clock Works of Birmingham, England, Revealed: Part 5: 'The Caledonian Registered Movement,'" *Watch & Clock Bulletin* 65, no. 465 (September/October 2023): 325–39.
3. As previously recounted in Part 5 of this series of articles, searches of the trademark index at the British Library discovered that "The Caledonian Registered" was never filed as a registered trademark in Great Britain; this same search also included just the single word "Caledonian", with nothing filed under this name either. See Gosnell, "The Atlantic Clock Works of Birmingham, England, Revealed: Part 5: 'The Caledonian Registered Movement,'" 331.
4. Gosnell, "The Atlantic Clock Works of Birmingham, England, Revealed: Part 5: 'The Caledonian Registered Movement,'" 331–39.
5. The marks on these three "T.C.R." movements were recorded in Part 5 of this series of articles in Table 1 under the last three columns on line 10: Gosnell, "The Atlantic Clock Works of Birmingham, England, Revealed: Part 5: 'The Caledonian Registered Movement,'" 326.
6. Owen H. Burt, "Seth Thomas 9" Cottage Clocks Stage II (1865–1871)," *NAWCC Bulletin* 40, no. 313 (April 1998): 141–42, Figures 2.27 and 2.28.
7. Peter Gosnell, "The Atlantic Clock Works of Birmingham, England, Revealed: Part 3: 'Square Nut Movements,'" *Watch & Clock Bulletin* 65, no. 463 (May/June 2023): 164.
8. A. Lee Smith, "Cottage Timepieces and Their Movements," *NAWCC Bulletin* 40, no. 317 (December 1998): 714, Figures 8 and 9 [incorrectly numbered].
9. "Research Activities and News," *Watch & Clock Bulletin* 54, no. 396 (March/April 2012): 209.
10. Gosnell, "The Atlantic Clock Works of Birmingham, England, Revealed: Part 1: Charles Cartwright & Sons," 42.
11. This family of movements included "First Attempt", "Early Production", "Square Nut", "Tempus Raptor", and "Lyre Plate."

About the Author

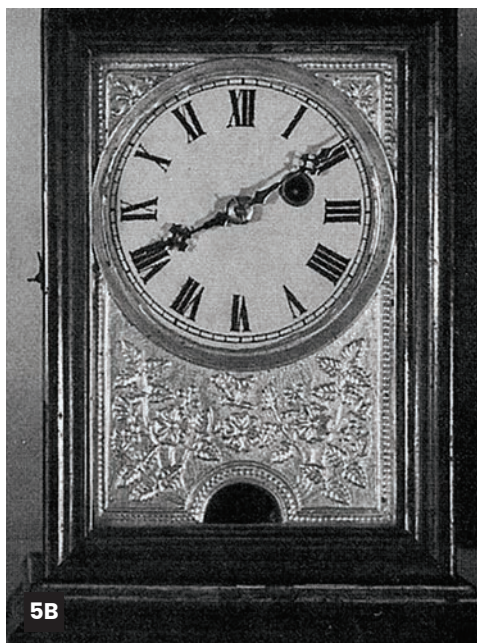
Peter Gosnell joined the NAWCC in 1997 and between 2001 and 2008 made yearly visits to the US to study the development of the Connecticut brass clock movement with the guidance of the late Dr. Snowden Taylor. Subsequently, Peter's research has focused on early industrialized clockmaking in England, with a number of articles on the subject published in the *Bulletin*.

Figure 5A.
Front of the "1-day Caledonian" movement found within a cottage clock case. COURTESY OF THE LATE A. LEE SMITH.



5A

Figure 5B.
Cottage clock case containing the "1-day Caledonian" movement in Figure 5A. COURTESY OF THE LATE A. LEE SMITH.



5B

A Circa 1910 W. A. Wood Globe Time Recorder Clock

BY ALLAN SYMONS, NAWCC FELLOW (CAN)

All photographs were provided by the Canadian Clock Museum except as noted.

In January 2021 the Canadian Clock Museum purchased an early drum-type employee time-recording clock from Log Farm Antiques south of Carleton Place, Ontario. The shop had acquired it from a homeowner in Carleton Place who had once worked in the mines in Sudbury, Ontario.

The W. A. Wood Globe Time Recorder Clock

The clock, manufactured in Montreal, Quebec, dates to circa 1910 (Figure 1). The metal label on the bottom front of the case (Figure 2) includes a patent date of August 1907. This Canadian patent was found online and is discussed in detail below. The number 31738 on the label is the serial number.

A 1910 print advertisement (Figure 3) states that W. A. Wood made time recorders in its factory at 40 St. George St. in Montreal.¹ Among “over 224 different” time recorders being manufactured were the Daily model and the Weekly model, the example discussed here.

Included in the 1910 advertisement was the following message to factory owners: “‘GLOBE’ TIME RECORDERS are made in Canada by expert mechanics. They are accurate, simple in construction, strong, and of good chaste appearance. They will record with absolute accuracy the arrival and departure of your employees (TO THE MINUTE), making you pay for what you get and no more. All lates and short time marked in red, regular time in green.” Not much trust was shown in the employees!

The weekly model’s design was described as “an entirely automatic recorder requiring no attention whatever during the week as all changes, etc., occur automatically (DONE BY CLOCK WORK).”

A search of online Montreal city directories revealed two detailed listings in Lovell’s 1910–1911 directory,² shown in Figures 4 and 5. As indicated in its 1910



Figure 1. The front view of the Globe time recorder that is 44" high.

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Figure 2. The metal company label at the bottom front of the oak veneer case (2 1/2" w x 1 1/8" h).

"GLOBE" TIME RECORDERS



are made in Canada by expert mechanics. They are accurate, simple in construction, strong, and of good chaste appearance. They will record with absolute accuracy the arrival and departure of your employees (TO THE MINUTE), making you pay for what you get and no more. All lates and short time marked in red, regular time in green. The small cut at the top illustrates the WEEKLY MODEL, an entirely automatic recorder requiring no attention whatever during the week-as all changes, etc., occur automatically (DONE BY CLOCK WORK). The DAILY MODEL is shown in the cut at the bottom. This recorder is being used mostly in large shops, etc., where a large number of hands are employed. With the "GLOBE" TIME RECORDERS only one operation is required as against five with most others.

Inspection may be made through the glass sides of the case, but tampering with records is impossible, no danger of having soiled, torn or lost records when same are unfavorable, as is the case with all CARD CLOCKS. We are now manufacturing over 224 DIFFERENT TIME RECORDING CLOCKS, and are in a position to meet the requirements of any business. Write us about your needs and let us suggest what will best meet with your requirements. WE SOLICIT YOUR ENQUIRY.

W. A. WOOD, Manufacturer
 Head Office and Factory: 40 St. George St., Montreal
 Branch Offices:
 19 Bleury St., Montreal 65-67 Victoria St., Toronto



Figure 3. A 1910 W. A. Wood advertisement posted on www.trainweb.org.

LOVELL'S
MONTREAL DIRECTORY,
 FOR 1910-1911. *L. H. Scotte*
 CONTAINING AN
 Alphabetical and Street Directory of the Citizens
 AN
 ADVERTISERS' CLASSIFIED BUSINESS DIRECTORY,

***Clocks--Time Recorders**
 CROUSE HINDS CO. 248 Notre Dame West
 WOOD W. A., 19 Bleury and 40 St. George.

Figure 4. Title page and a small listing for W. A. Wood products in Lovell's Montreal directory.

WOOD W. A.,
Manufacturers of Time Recording Clocks.
Over 224 Different Kinds.
Factory: 40 St. George St., Montreal.
Phones Main 2624, 7025
Offices: 19 Bleury St., Montreal
63-67 Victoria St., Toronto

Figure 5. Large company listing on page 1,838 in the 1910-1911 Montreal directory (note the Toronto office).



Figure 6. The middle dial that indicates the time.



Figure 7. The upper dial that shows the days of the week: Monday to Saturday, but not Sunday.

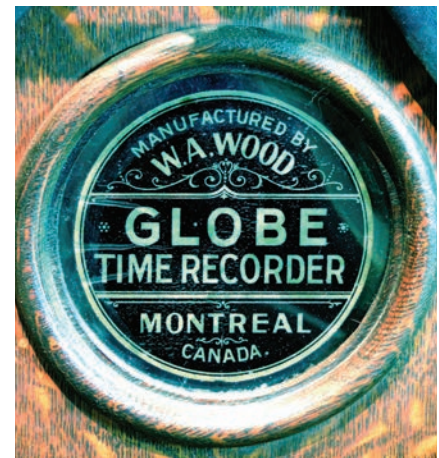


Figure 8. The opaque lower glass window.

advertisement (Figure 3), the company factory was at 40 St. George St., with separate sales offices in both Montreal and Toronto.

The W. A. Wood company appeared in the annual Montreal directories for just eight years, from 1908–1916. In 1908 the factory was not yet listed at 40 St. George St., but the names “Moeser Fred. W with W A Wood” and, in a separate line, “Wood W A. jun, bookkeeper” were included at 19 Bleury St.

Clock Construction and Operation

The solid wooden case has an oak veneer with a dark finish, and the whole clock is as heavy as it looks. Note the large, colorful metal ring and frame at the front, which has individual numbers for all of the factory workers. Most employee numbers are missing from the ring, which has space for 100, starting from 151 to 250 for this clock.

The long metal handle would be rotated around the metal ring to an employee’s number and pushed in to record that number and the current time

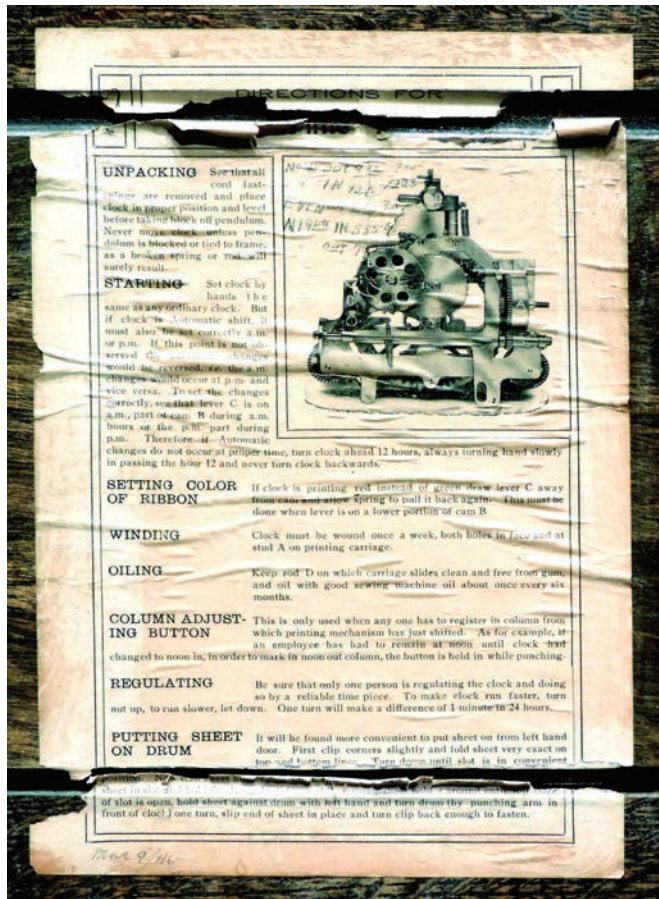


Figure 9. The clock’s operating instructions inside the left-side door.

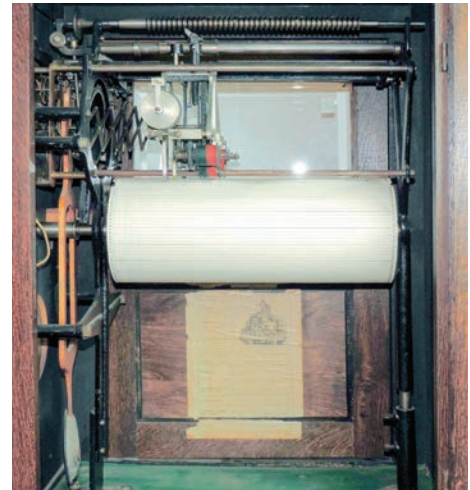


Figure 10. Inside view with the right-side door open, with the instructions on the door.



Figure 11. Inside view with the left-side door open.

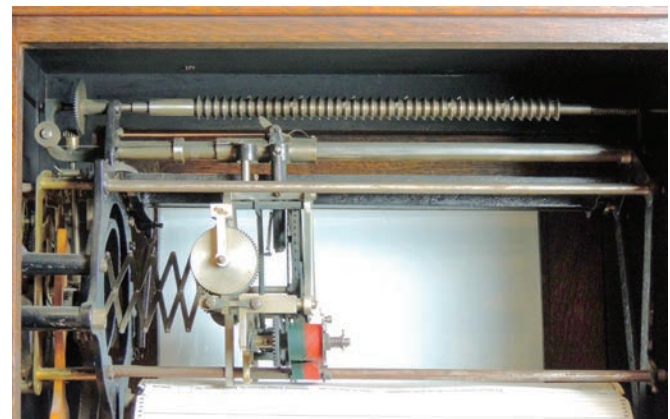


Figure 12. The horizontal, full-length rod at the top with its “series of groups” of “notched detent discs” contacted by a “dog” linked to the print head. The rod is rotated slowly by the clock movement. The print head with its bicolor ribbon moves to the right with time during the week (right-side door view, clock movement at the left end). The discs can be individually rotated on the shaft “to cause the printing mechanism at predetermined times to skip spaces or predetermined time intervals.” Quoted text is from the patent.

via an inked ribbon on the paper chart mounted on the linked drum inside. Pushing hard enough to ensure good printing rings a bell inside. The y-axis on the chart provides the time via a scissor-like mechanism and the long x-axis records the employee number.

Figures 6 to 8 include the main clock time dial, the upper weekly dial, and the lower glass window with the company name. The instruction sheet (Figure 9) is inside the large door on the left.

The front of the massive, double-spring clock movement cannot be easily accessed. It appears to be a Seth Thomas Model 50, based on the cutouts

in the brass backplate and a comparable Model 50 movement seen on eBay and claimed to be a typical time recorder movement.

Some components of the sophisticated time recording mechanism are shown in Figures 10–17. Included with the clock was a long, narrow cardboard box with 16 rolled-up spare sheets of old IBM-supplied chart paper for the drum, the large winding key, and six loose, discolored numbers (Figure 18). The few numbers still present, loose and on the ring, range from 156 to 246. An open replacement IBM chart is shown in Figure 19.

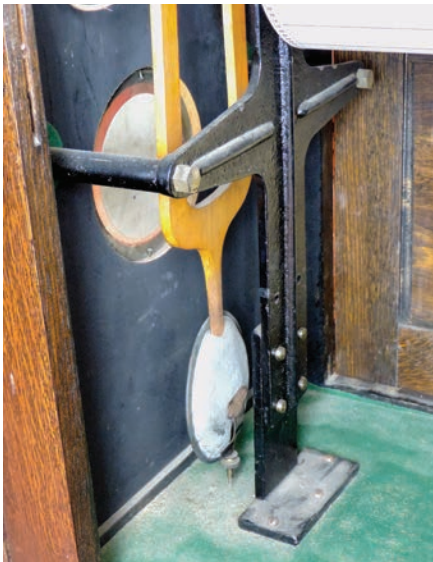


Figure 13. The clock's massive pendulum with an open-center wooden rod and large bob.

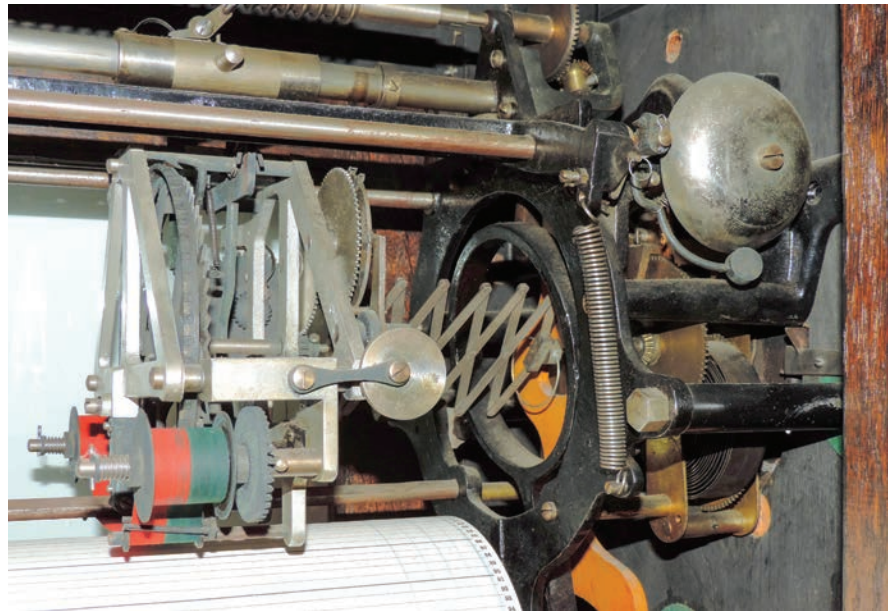


Figure 14. The bell with its "knocker" visible through the left-side door.

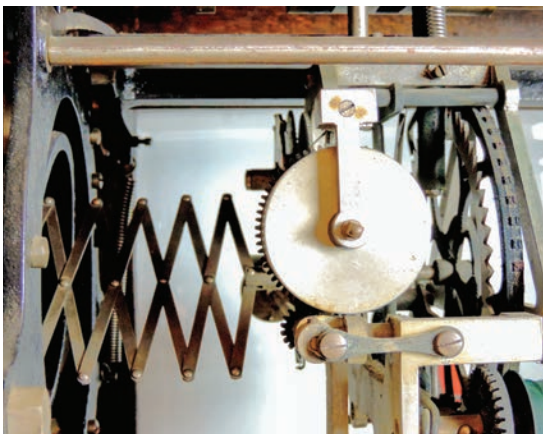


Figure 15. The scissor-like "telescopic shaft" that moves the printer head slowly to the right with time. Note the vertical minute-numbers printer wheel at right.

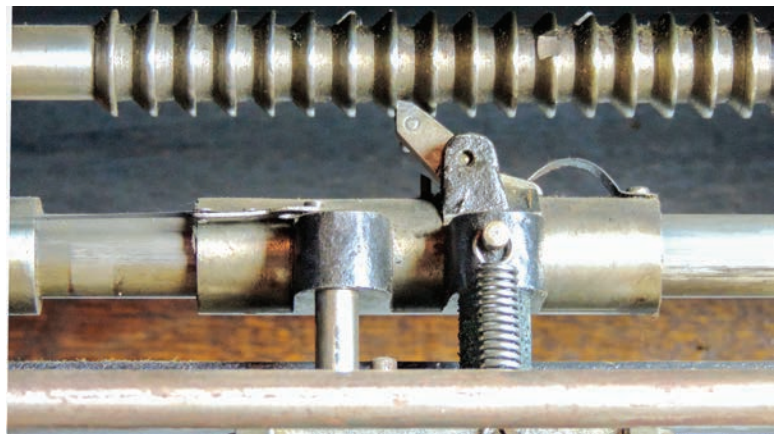


Figure 16. The "dog" contacting the space between two of the rotatable "notched detent discs" that can be adjusted to allow predetermined (programmed) passage of the dog and printer carrier.

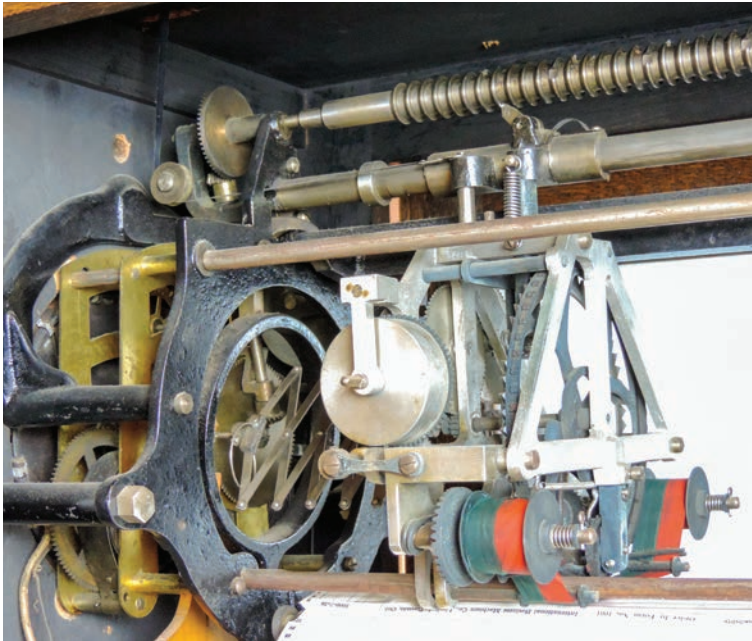


Figure 17. The printing and time-positioning mechanisms seen through the right-side door. Note the vertical wheel at upper left that is turned slowly by the clock movement, thereby rotating with time the horizontal shaft with the "notched detent discs." The two brass plates of the clock movement are visible.

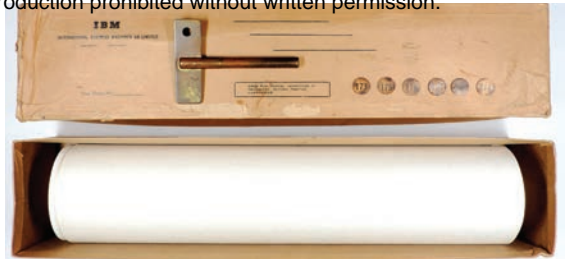


Figure 18. The large key (4¼" long), six loose numbers, and box of IBM chart paper acquired with the clock.

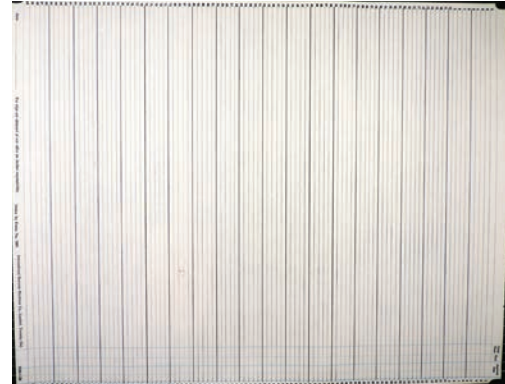


Figure 19. One of 16 unused IBM paper charts (16"x20"). Time is recorded on the y-axis for the 1 to 100 employee numbers on the x-axis.

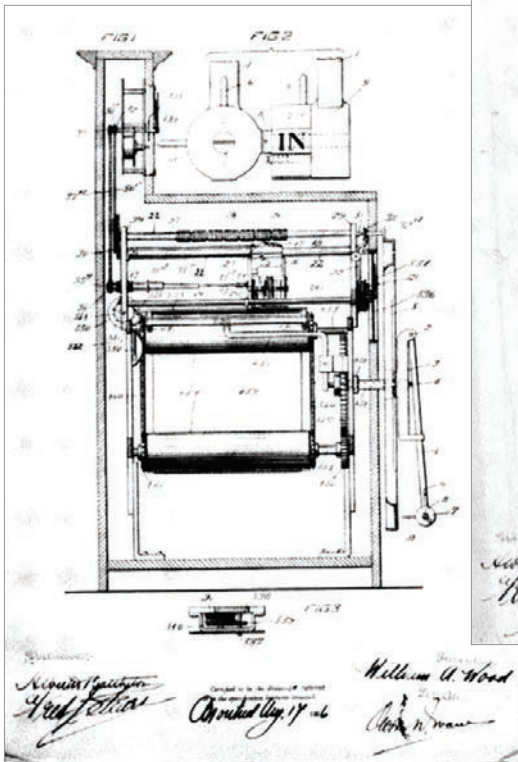


Figure 20. Patent Figures 1 to 3 on Drawing 1.

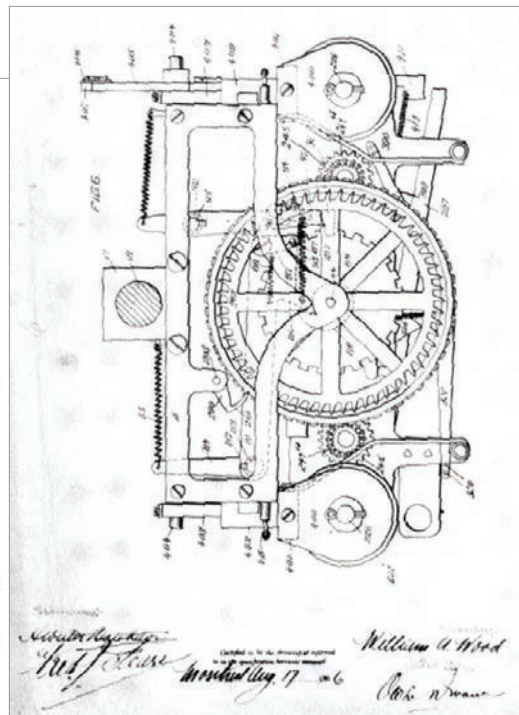


Figure 21. Patent Figure 6 on Drawing 3.

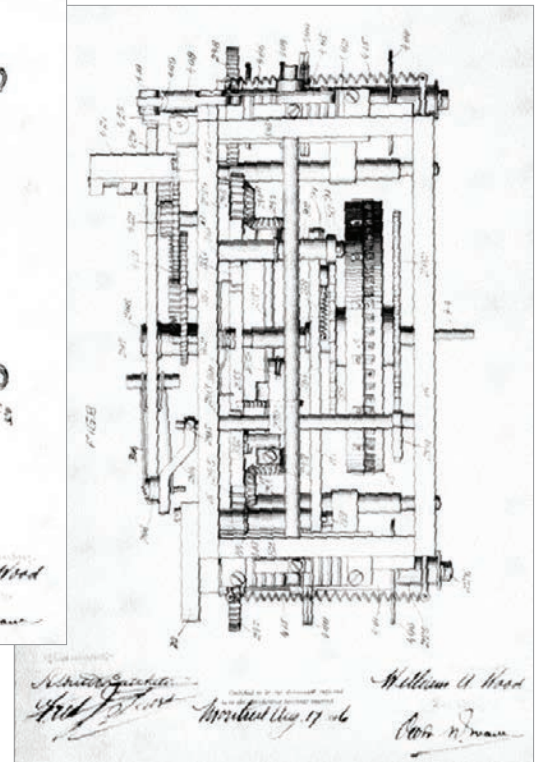


Figure 22. Patent Figure 8 on Drawing 5.

The August 1907 Canadian Patent

Patent 106932 was issued in Canada on August 13, 1907 to inventor/owner William Archibald Wood for a workman's time recorder.³ The application date was August 20, 1906.

The patent includes an amazing 53 claims over 15 pages, with 16 pages of very detailed descriptions and 14 meticulous figures on eight drawings. The original patent drawings were signed by William A. Wood.

William Archibald Wood of Montreal had received Canadian copyright 11308 on April 19, 1900, for his "Wood's Time Sheet and Pay Roll." He had also been granted some American patents during the Canadian patent time period for similar but less sophisticated time recorder designs.

The 1907 Canadian patent documents were typed, with carbon paper copies, on sometimes imperfect typewriters. The available scanned patent pages are somewhat fuzzy but mostly legible. The introduction states, "This invention relates to workman's time recorders and has for its chief objects to enable one and the same machine to record separately but simultaneously or concurrently both regular time work and job time work, to provide improved means for setting the carriage feeding mechanism, either backwards or forwards, and also for mechanically adjusting the periods of intermission; and to enable a workman

without specially setting the clock to make a record in the coming in column though the workman preceding him and those following him should all make their records in the 'going out' column."

Subsequent sections of the patent description point out improvements over existing technology. Wood's description also notes that "it has been frequently found necessary, where piece work is being done for instance, to have separate means to time the latter. To combine this auxiliary means in a single machine is one of the objects of this invention, and a second train of time printing wheels is therefore mounted in the casing."

I could not find any reference in this Wood patent to existing time recorder patents, American or otherwise, including his own 1906 American patent noted below.

A small sampling of the 1907 Canadian patent's 53 claims is provided here. You will recognize the repetitive wording style typical of patents.

No. 1. A workman's time recorder comprising main time printing mechanism and auxiliary time printing mechanism both arranged to be driven by one and the same clockwork for the purpose set forth.

No. 2. A workman's time recorder provided, for the purpose of intermittently moving the carriage feeding mechanism, with means, such as disc, whereby such feeding mechanism can be set backwards or forwards by the clock hands for the purpose described.

No. 53. In a workman's time recorder having means carrying and feeding a two color ribbon, of means for shifting the ribbon carrier consisting of cam 901, bell-crank-lever 905, 906 and spring 907, substantially as described and for the purpose set forth.

Figures 20–23 show four of the eight very detailed drawings that contain more than 100 numbered components in the 1907 Canadian patent's 14 figures. The 2013 online scans of the drawings are not the best. Unfortunately, better copies are not available; the Canadian patent office apparently discards the original paper documents after they have been scanned.

Wood's 1906 and 1908 US Patents

On March 13, 1906, Wood was granted US patent 814,760 (filed in 1903) for his "Workman's Time-Recorder." He had "invented certain new and useful Improvements in Workmen's Time-Recorders."⁴

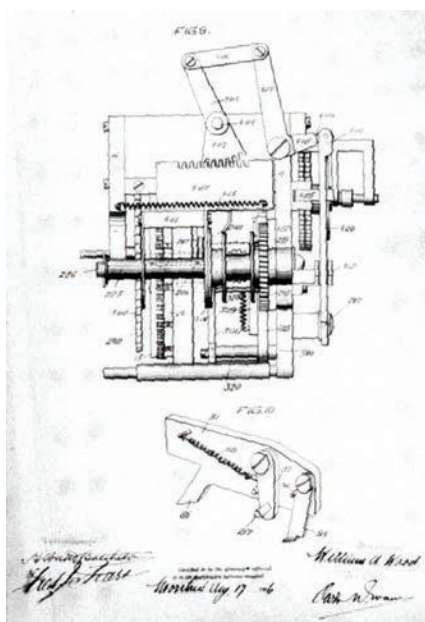


Figure 23. Patent Figures 9 and 10 on Drawing 6.

In this case he patented modifications so that a regular time recorder could “record the time either upon a time-card or time-sheet, as desired.”

Then on May 5, 1908, a year after his Canadian patent, Wood was granted US patent 886,456 (also filed in 1903), again for “Workman’s Time Recorder.”⁵ In this patent he stated: “The object of my invention is to provide a less complicated and less costly machine than has been known heretofore, and one that will require no attention during the week and at the same time utilize a narrower time sheet (with a consequent reduction in the size of the machine), and register the number of the workmen which have recorded their time.”

Who Was Patent Owner William A. Wood?

Fortunately, a 1986 book⁶ about watchmaker John Wood from Montreal includes a family tree of Canadian descendants. Three have the identical name William Archibald Wood. The dates of the first W. A. Wood were 1858–1932, the second 1889–1968,

and the third was born in 1919, after the 1907 patent date. The latter is the author of the book.

The second man would have been 18 at the time of the 1907 Canadian patent and therefore is probably not the inventor and W. A. Wood company owner. The first William Archibald Wood would have been 49 in 1907 and so he most likely was the inventor. However, as noted in the Montreal directory listings, it seems that father and son (jun = junior, I assume) with identical names were involved at least in 1908.

Wood of the W. A. Wood Time Recorder Co. died in 1932 at age 73. His obituary appeared in Montreal newspapers on June 13, 1932 (Figure 24). It said that “he was the first in this country to manufacture time recording clocks, now used so widely in all kinds of offices and factories” and that he had sold his company in 1915 and then retired.

The sale of Wood’s company had been reported 16 years earlier in a January 22, 1916 article in Binghamton, NY’s *Press & Sun-Bulletin* (Figure 25). At that time the Wood company apparently had 200 employees and more than 4,500 customers. The International Time Recorder Co. (ITR) was the buyer for \$50,000—or \$1,360,000 in 2023 dollars. That would have been a nice retirement sum for Wood at age 57! ITR clearly valued the patent-protected, innovative Wood technology to pay that much for it in 1915.

A Dey Patents Co. Mystery

The Dey Patents Co. in Syracuse, NY, had before 1900 patented and manufactured employee time clocks that looked very much like the W. A. Wood

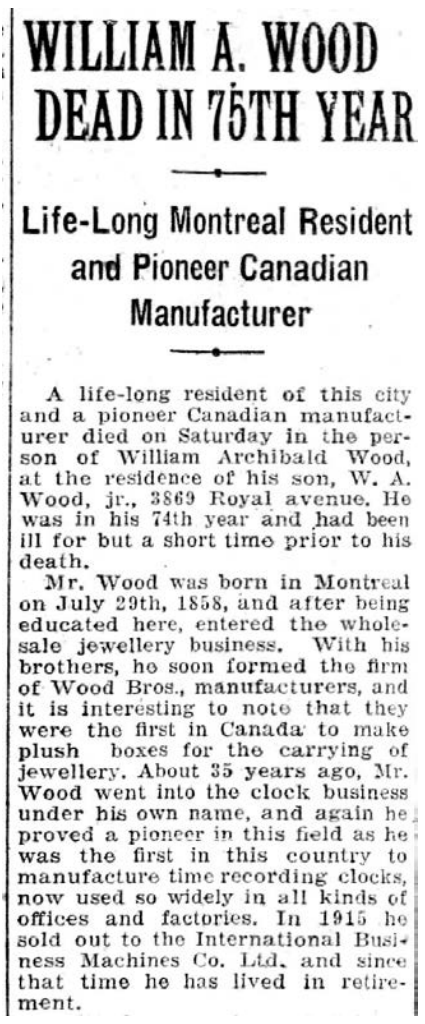


Figure 24. Part of the obituary in the June 13, 1932, *Montreal Gazette*. It contains two typos: it should read “74th Year” in the heading and “about 25 years ago” in the second paragraph. COURTESY OF DAVID B. JOHNSON.



Figure 25. Part of a story in the January 22, 1916, edition of Binghamton, NY’s *Press & Sun-Bulletin*. COURTESY OF DAVID B. JOHNSON.

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example. Some readers may be familiar with those Dey clocks.⁷

David B. Johnson has a website⁸ with pictures of many American time recorder clocks, including Dey Register models and a list of significant events in that company's history. The Dey patents date to the late 1880s.

Dey clocks occasionally turn up for sale in Canada as well as the United States. For example, the October 29, 2022, Miller & Miller online auction⁹ in New Hamburg, Ontario, included a Dey Time Register model (Figures 26–28) almost identical to this article's W. A. Wood time recorder clock.

It is interesting that a Canadian W. A. Wood weekly model time recorder turned up in an online auction in March 2020 at King Galleries in Roswell, GA.¹⁰ The example (Figures 29–31) is not exactly the same as the Canadian Clock Museum's weekly model. The dial in Figure 30 includes Sunday while the museum's example does not (Figure 7). Note the serial number 31755 (Figure 31), and the museum's number 31738 (Figure 2). The significance of these numbers is unknown. It seems unlikely that more than 31,000 of this model were made, but the size of the potential market is also unknown.



Figure 26. The Dey Time Register clock in the Miller & Miller October 2022 auction. PHOTO BY JON DUNFORD FOR MILLER & MILLER AUCTIONS, USED WITH PERMISSION.



Figure 27. The Dey clock's daily dial. PHOTO BY JON DUNFORD FOR MILLER & MILLER AUCTIONS, USED WITH PERMISSION.



Figure 28. The Dey clock's metal label. PHOTO BY JON DUNFORD FOR MILLER & MILLER AUCTIONS, USED WITH PERMISSION.

Summary

Based on my research, the W. A. Wood Globe Time Recorders Co. in Montreal was founded by William Archibald Wood, who lived from 1858 to 1932. This article provides the first published history of the man who designed, patented, and manufactured his time recorder products in Canada for the Canadian market more than 100 years ago. He clearly spent considerable time during the first decade of the 20th century developing and improving very sophisticated, patentable mechanisms for time recorders. His company was in business for just eight years, from about 1908 to 1916 according to listings in the Montreal city directories from that time. Wood sold his company to the International Time Recorder Co. and retired.

I find it curious that William A. Wood was able to obtain a Canadian patent in 1907 for a time recorder that, at least outwardly, appears almost identical to previously patented Dey models on the market at that time. However, Wood's application with its 53 claims was accepted by the Canadian patent office. His patent highlights, and rests upon, his many improvements to the technology *inside* the similar wooden cases with similar metal front rings. ITR considered them valuable enough to pay \$50,000 for the still-patented technology in 1915.

I welcome feedback from *Bulletin* readers via e-mail at manager@canclockmuseum.ca.



Figure 29. The W. A. Wood time recorder clock sold via auction in Georgia in 2020 by King Galleries. PHOTO USED BY PERMISSION OF KING GALLERIES AUCTION.



Figure 30. The weekly dial—including Sunday—of the time recorder from the Georgia auction. PHOTO USED BY PERMISSION OF KING GALLERIES AUCTION.



Figure 31. The metal label of the clock from the Georgia auction. PHOTO USED BY PERMISSION OF KING GALLERIES AUCTION.

Notes and References

1. This advertisement is included in the photographs at Old Time Trains, Canadian Railway History and Sites, <http://www.trainweb.org/oldtimetrains/>.
2. Collection of Lovell Directories of Montreal and Its Region, 1842–2010, National Library and Archives of Quebec, <https://numerique.banq.qc.ca/patrimoine/details/52327/3653030>.
3. Patent 106932 Summary, Canadian Patent Database, Government of Canada, https://www.ic.gc.ca/opic-cipo/cpd/eng/patent/106932/summary.html?type=number_search&tabsIndex=tabs1_1.
4. Workman's Time-Recorder Patent, US814,760, <https://patents.google.com/patent/US814760A/en?q=US814%2c760>.
5. Workman's Time-Recorder Patent, US886,456, <https://image-ppubs.uspto.gov/dirsearch-public/print/downloadPdf/0886456>. The delay between filing US patents and granting them was significant for some applications. Perhaps the delays were caused by the patent examiners requesting more information.
6. William A. Wood, *The Days of John Wood, Watchmaker* (Hudson Heights, Quebec: Wood Family Archives, 1986), foldout between pages 42 and 43. I contacted the book's publisher in January 2023 to inquire if they had any information about the time recorder company, since the author had noted that the archives did have unpublished documents relating to his father. I did not hear back from them.
7. For information on the history of dial recorders, see Alan C. Sayles, "A Short History of Dial Recorders," *Bulletin of the National Association of Watch and Clock Collectors, Inc.* 9, no. 94 (October 1961): 941–42. An in-depth history of many American time recorder companies was provided in Joseph M. Gensheimer, "Recording Time: More History of the International Time Recording Company Before and After," *NAWCC Bulletin* 38, no. 303 (August 1996) 463–78; see also Joseph M. Gensheimer, "More Time Recording Questions and Answers," *NAWCC Bulletin* 44, no. 339 (August 2002): 434–45. A keyword search for "W.A. Wood," "Wood time recorder," and "Globe time recorder" generated no hits in the *Bulletin* database.
8. "Dey Patents Company," Antique Time Clocks, <http://www.antiquetimeclocks.com/deypatent.html>.
9. Dey Patents Co. Time Register Clock, Miller & Miller Auctions Ltd., <https://live.millerandmillerauctions.com/lots/view/4-7IP6GT/dey-patents-co-time-register-clock>.
10. W. A. Wood Montreal Globe Time Recorder, King Galleries, https://www.liveauctioneers.com/item/81975192_wa-wood-montreal-globe-time-recorder.

Acknowledgments

David B. Johnson generously offered his extensive knowledge about Wood and Dey clocks via email correspondence. *Ottawa Chapter Bytown Times* editor Gary Fox supplied *The Days of John Wood, Watchmaker*, which contains the Wood family genealogy.

About the Author

This is the tenth article published by Allan Symons since his first in 2010. His focus remains on sharing the stories of companies that made clocks in Canada starting in the 1870s. Celebrating its 24th anniversary in 2023, the Canadian Clock Museum (www.canclockmuseum.ca) in Deep River, Ontario, promotes Canadian horology and answers questions about inherited and found clocks. The museum website's virtual tour of the exhibits has been accessed more than 50,000 times since its creation in 2021.

Friends Through Fathoms of Time

A funeral procession yesterday
40 or 50 cars
(Quite a lot I said to myself)
Has got me thinking of my early friends
Near Temple Street where we grew up
Colleen like a sister
Tommy Dominic
Rocky and Joe
We watched TV the newest rage
Played stickball went crazy for rock and roll
And walked the streets at night
Cussing loud
Love and pleasure were like the sun
And disappointment the end of the world
Could they even think that I've forgotten them
So little am I involved
But they're pictures for me
With verve and happy thoughts
How are they doing are they around
Am I a forgotten one

© Raymond Comeau, April 2023

Here is a poem about what can be referred to as "deep time," which is an aspect of time that can be captured through the vehicle of memory. It expresses an attitude toward childhood friends that some members may very well share. Ray Comeau is a current lecturer on management, literature, and philosophy in Harvard Extension School. Formerly, he served as Associate Dean of Management Studies and Director of Foreign Language Instruction in the same institution. He is a member of NAWCC Chapters 8 and 87 in his native Massachusetts. His email is comeau@fas.harvard.edu.

Vox Temporis

Dear Editor,

What a pleasant surprise to open the September/October 2023 *Bulletin* and see a clock strikingly similar to what I have hanging in my shop!

I rescued my clock from poor condition, and I also had similar challenges overhauling the movement and fitting the very large dial pan. It actually keeps decent time for a spring-driven clock of that era, and it reminds me what day it is with the calendar.

The pendulum glass on mine has been changed, but otherwise it is virtually identical. I'm also including a picture of what was left of the clock label, with very limited paper remaining. It will be covered with an archival sheet to protect it.

—Ian Graham (CAN)



The Rediscovered Watch Cock Collection of Lt. Col. Arthur Sydney Bates

BY VINCENT CHERICO (RI)

The Bates collection of watch cocks once comprised nearly 5,000 watch cocks. It was the largest collection of watch cocks ever assembled in England and is arguably one of the four greatest collections of watch cocks ever assembled in the world. The other three contenders are the Musée Du Mont-St-Michel collection, the Charles O. Terwilliger Jr. collection, and the Cedric Jagger collection. Each of these collections has their own distinguishing merits: quality, quantity, variety, and so on. The Bates collection was an amalgam of several collections, most notably the Dudley C. Fackel collection, which was featured in *The Connoisseur* magazine in January 1910 and March 1911. The Bates collection was sold in a series of auctions at Sotheby's in the late 1980s and was believed to have been dispersed and totally lost. This turns out to be untrue, and I am delighted to report much still remains of the collection for public view and study.

Rediscoveries

Our story of rediscovery begins with the help of Laura Turner, curator of horology at the British Museum in

London. She discovered an uncatalogued collection of 52 black and white, 8" x 5.25" photographs of the Bates collection of watch cocks in the British Museum's horological archive. These newly found photographs show the 52 individual glazed drawers containing the collection. Despite the small size of the photos, they are still quite revealing, as with magnification you can identify what cocks are in the collection. More importantly, the photos give an idea of the scope of the collection itself (Figures 1A and 1B).

The second discovery happened with the assistance of Anna Rolls, curator of the Clockmakers' Museum in London. The museum's artifacts were assembled by the Worshipful Company of Clockmakers. The collection contains a cabinet of 10 glazed drawers holding watch cocks donated by Stanley H. Burton. What was not previously known is that this collection is one of the five cabinets from the Bates collection (Figures 2A and 2B).

Lastly, Helen Chapman of the Antiquarian Horological Society (AHS) in London unearthed a 30-year-old file folder marked "Watch Cocks



Figures 1A and 1B. Contents of drawer no. 22 and drawer no. 45. These photos were taken while the collection was being temporarily housed at the British Museum. REPRODUCED WITH PERMISSION OF THE BRITISH MUSEUM © THE TRUSTEES OF THE BRITISH MUSEUM.

(History).” The folder’s contents allowed us to confirm that the collection of 186 framed watch cocks in storage there were, in fact, from the Bates collection and contained many of its most unusual and exceptional examples. This collection of 186 watch cocks is contained in five shadowboxes with gold frames, with the cocks mounted on an attractive light blue background, two measuring 14” x 23” and three measuring 14” x 18”. All were meant to be wall mounted (Figures 3–15).

History of the Collection

Upon the death of Lt. Col. Bates in 1958, the AHS acquired the collection from his widow, Mary Bates. Several years before the Society had an official headquarters, the collection was stored at the home of the Society’s librarian, R. K. Foulkes. In 1973 the Society was forced to vacate its premises at 28 Welbeck Street, London, and it scrambled to house its collections and library. Fortunately, the British Museum graciously took the collection as



Figures 2A and 2B. Cabinet no. 2 containing drawers 9–18 of the Lt. Col. Bates watch cock collection. PHOTOGRAPHS BY CURATOR ANNA ROLLS, COURTESY OF THE WORSHIPFUL COMPANY OF CLOCKMAKERS (LONDON).



Figure 3. One of the five framed collections of watch cocks from the Bates collection at the AHS headquarters in London. AUTHOR’S PHOTO, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 4. Early 19th-century watch cock still mounted to its upper plate. It has an agricultural theme of a sheaf of wheat, sickle, scythe, shovel, spade, hoe, rake, and cornucopias. From the Bates collection at the AHS headquarters in London. AUTHOR'S PHOTO, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 5. Early 19th-century watch cock still with its upper plate containing a Masonic theme with sun in splendor. From the Bates collection at the AHS headquarters in London. PHOTO BY DR. JAMES NYE, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 6. Late 18th-century watch cock with a watchmaker's name: "Wright Watch Maker to the King". From the Bates collection at the AHS headquarters in London. PHOTO BY DR. JAMES NYE, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 7. Late 18th-century watch cock with a female figure. From the Bates collection at the AHS headquarters in London. AUTHOR'S PHOTO, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 8. Early 18th-century silver and glazed watch cock with a red center stone. It is not known if this is a true endstone capping the balance's upper pivot or just a decorative element. From the Bates collection at the AHS headquarters in London. PHOTO BY DR. JAMES NYE, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.

well as many other horological items for temporary safekeeping, and the collection was photographed at that time.

In 1987 the British Museum returned the collection to the AHS. At some point in the sequence of events, Rodney Law of the Society selected 186 exceptional and unusual watch cocks to be removed from the Bates collection and mounted in frames for display at the society's headquarters, then at New House, Ticehurst, Wadhurst, Sussex.

Who Was Lt. Col. Arthur Sydney Bates, DSO, TD?

Arthur Sydney Bates was born on June 18, 1879, the son of Sydney Eggers Bates and the grandson of Sir Edward Bates, first Baronet Bates of Bellefield. Although Arthur Sydney did not inherit the title, as he was the descendant of the youngest son of Sir Edward, he did inherit Manydown Park in Basingstoke, Hampshire, one of his grandfather's three estates. For any Jane Austen fans, this is the same Manydown Park where she accepted the marriage proposal of Harris Bigg-Wither and then rescinded her acceptance and fled the house (Figure 16).

After completing his education at Winchester College, Arthur Sydney joined the London Rifle Brigade, serving with distinction in World War I and rising to the rank of lieutenant colonel and receiving the Distinguished Service Order (DSO) and Territorial Decoration (TD). He was awarded the Croix de Guerre with Palm from the French for his service (Figures 17 and 18). During World War I, he played a key role in the famous Christmas truce of 1914 when he ordered his troops not to fire unless fired upon. This event, much written about, involved a spontaneous and unofficial truce between the frontline British and German soldiers on Christmas Eve and Christmas Day of 1914. The combatants met each other in no-man's land and exchanged gifts and sang carols (Figure 19).

Lt. Col. Bates was a founding member of the AHS. He lectured and wrote several articles on watch cock designs. He was a liveryman of the merchant Taylors of London and his father was a Master of the company before him. Lt. Col. Bates married Mary da Costa Crosse in 1905, and they had one daughter, Anne.



Figure 9. Early 18th-century glazed watch cock with a tripartite filigree center. From the Bates collection at the AHS headquarters in London. PHOTO BY DR. JAMES NYE, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 10. Early to mid-19th-century watch cock with an elephant carrying a howdah (castle). From the Bates collection at the AHS headquarters in London. PHOTO BY DR. JAMES NYE, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 11. Early 18th-century watch cock with silver inlay in the table. From the Bates collection at the AHS headquarters in London. PHOTO BY DR. JAMES NYE, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 12. Early to mid-19th-century watch cock with a crescent moon and star made for export to the Ottoman market. From the Bates collection at the AHS headquarters in London. AUTHOR'S PHOTO, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 13. Early to mid-19th-century watch cock with "Long Necked Lady" design. From the Bates collection at the AHS headquarters in London. AUTHOR'S PHOTO, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.



Figure 14. Early to mid-19th-century watch cock with a "Jolly Lion" design. From the Bates collection at the AHS headquarters in London. AUTHOR'S PHOTO, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.

He had several hobbies other than watch cock collecting, primarily that of stamp collecting. He was a fellow of the Royal Philatelic Society and was the first recipient of its Tilleard Medal. He amassed a large and noteworthy collection second only to that of George V. On occasion Lt. Col. Bates would have to defer to the king when competing for the purchase of a rare stamp. His interest in stamp collecting comes as no surprise, considering that the joy of stamps is the same joy found in collecting watch cocks; it is the exploration of tiny worlds.

Lt. Col. Bates was also an expert marksman and was adjutant of the British shooting team in the 1908 Olympics. He was named captain and adjutant of several other British national teams over the years and won many major prizes in these competitions.

A fantastic archive of black-and-white home movies filmed by Lt. Col. Bates is stored at the Wessex Film and Sound Archive, which is part of the Hampshire Archives and Local Studies, Hampshire Record Office, Winchester, England. Most are available on YouTube and may be found by searching for "Manydown Films." The movies give a rare and amazing glimpse into his life at Manydown Park (Figures 20 and 21). Lt. Col. Bates died on May 7, 1958.



Figure 15. Early to mid-19th-century watch cock with a crescent moon and "secret" monogram of the maker Ralph Gout, made for export to the Ottoman market. From the Bates collection at the AHS headquarters in London. AUTHOR'S PHOTO, USED BY PERMISSION OF THE ANTIQUARIAN HOROLOGICAL SOCIETY.

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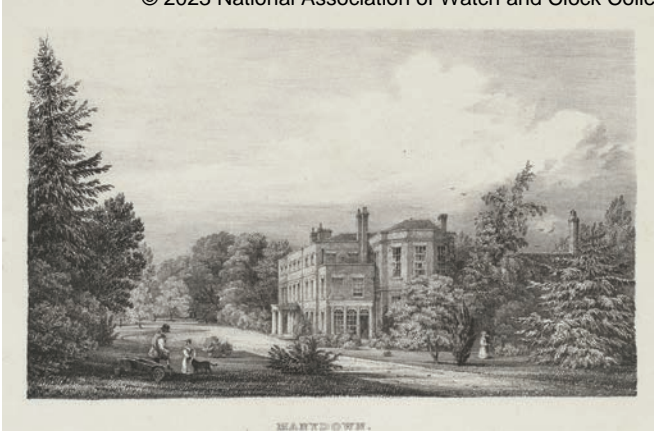


Figure 16. Lithograph of the Bates family estate, Manydown Park, from George Frederick Prosser, *Select Illustrations of Hampshire* (London: J. & A. Arch, Carpenter & Son, Jacobs & Johnson, 1833), at the Yale Center for British Art, Paul Mellon Fund, <https://collections.britishart.yale.edu/catalog/orbis:582476>. REPRODUCED IN ACCORDANCE WITH YALE CENTER FOR BRITISH ARTS FREE AND OPEN ACCESS POLICY.

What Might Still Be Out There?

The auction dates, lots number, and identifying quantities are included here for those who may wish to determine if their watch cocks were once included in the Bates collection. Although the Sotheby's auction catalogs make no reference to the provenance of the watch cocks being sold, the sales receipts are still housed at the AHS's headquarters, allowing us to identify the auctions.

There is a discrepancy both in the quantities of watch cocks per cabinet as well as the number of drawers in one cabinet when you compare the Sotheby's catalog descriptions with an inventory dated June 4, 1987. The inventory of the collection was taken by British Museum curator Beresford Hutchinson while it was still housed at the British Museum. The Sotheby's catalog descriptions do state that the counts are approximate. The number of cabinets also differs between the Hutchinson inventory letter describing a quantity of five cabinets and a described quantity of six cabinets in the announcement of the collection's acquisition by the AHS in 1959. I believe this discrepancy is merely a typographical error.

The auction catalog descriptions for the sale of the cabinet bought by Stanley H. Burton and given to the Worshipful Company of Clockmakers in 1990 states that it contained 817 watch cocks. The minutes of the Company's collections committee state the same quantity, but the cabinet actually contained 822 watch cocks. Twenty of them are presently on display in the Company's museum. At some point in the sequence of events before the sale of each



◀ **Figure 17.** Lt. Col. A. S. Bates in parade dress uniform. PRINTED WITH PERMISSION OF THE ROYAL GREEN JACKETS (RIFLES) MUSEUM, WINCHESTER, CATALOG #A278892-4, LT COL A. S. BATES 1935 DSO.

Figure 18 ▶. Major A. S. Bates DSO. Catalog #HU 113477. USED BY PERMISSION OF THE IMPERIAL WAR MUSEUM © IWM (HU 113477).



Figure 19. Lt. Col. Bates's men of the London Rifle Brigade enjoying Christmas day with the German soldiers, December 25, 1914. Catalog #Q 011745. USED BY PERMISSION OF THE IMPERIAL WAR MUSEUM © IWM (Q 011745).

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cabinet, either the counts had been approximated or the drawers jumbled about or both.

The collection was sold at the following series of Sotheby's auctions, with each catalog titled *Important Clocks, Watches, Wristwatches and Barometers*.

December 17, 1987, 10:30 a.m., Lot #145, 8 drawers, 525 qty.
Property receipt #033424
(Closest described cabinet in the Hutchinson inventory is Cabinet #1, 8 drawers, 527 qty.)

April 28, 1988, 10:30 a.m., Lot #4, 10 drawers, 1365 qty.
Property receipt #096929
(Closest described cabinet in the Hutchinson inventory is Cabinet #3, 10 drawers, 1,355 qty.)

October 13, 1988, 2:30 p.m., Lot# 236, 10 drawers, 946 qty. (Unsold, moved to next auction)

March 21, 1989, 10:30 a.m., Lot # 1, 10 drawers, 946 qty.
Property receipt #230082
(Closest described cabinet in the

Hutchinson inventory is Cabinet #5, 12 drawers, 1,005 qty.)

July 20, 1989, 10:30 a.m., Lot #4, 10 drawers, 817 qty. (Unsold, private sale brokered to Stanley H. Burton and later donated to the Worshipful Company of Clockmakers. See Minutes of the Collections Committee, February 5, 1990)
Property receipt #264171
(Closest described cabinet in the Hutchinson inventory is Cabinet #2, 10 drawers, 837 qty.)

May 10, 1990, 10:30 a.m., Lot #1, 12 drawers, 1,242 qty. (Unsold, private sale brokered)
Property receipt #1008818
(Closest described cabinet in the Hutchinson inventory is Cabinet #4, 12 drawers, 1,236 qty.)

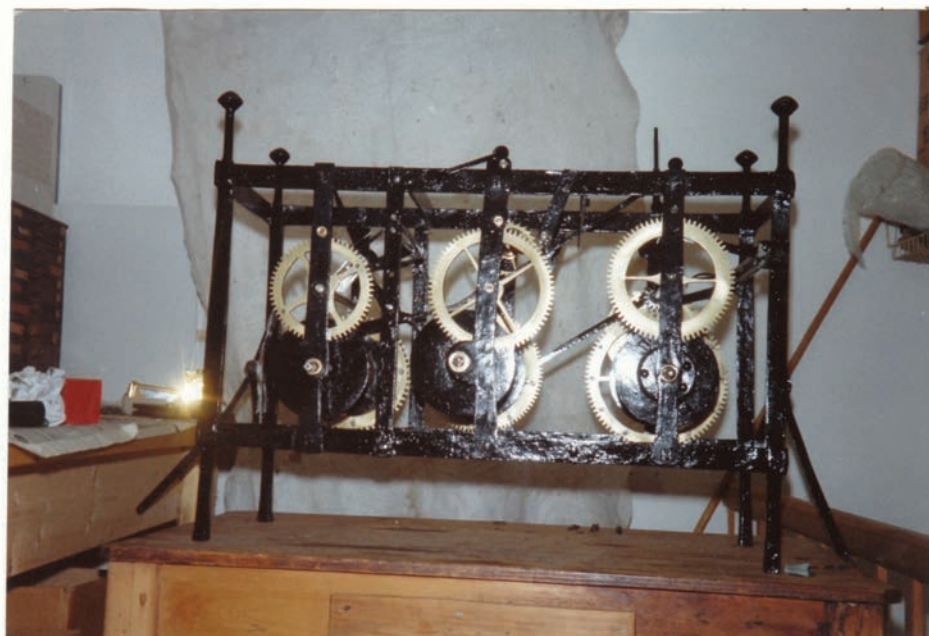
Acknowledgments

Thanks are due to the following people: James Reynolds for his expert aid in composition and again not murdering me in the process; Laura Taylor of the NAWCC for her expert editorial assistance;

Figure 20. The turret clock (ca. 1730) on Lt. Col. Bates's estate at Wootton House, moved from the Main House at Manydown Park. The valuation note states, "A rare 18 century three train turret clock of light, bed post construction, with rack ting tang quarter chimes on two bells, hourly count wheel striking on a third bell, and an anchor recoil escapement controlling the going train. The clock has two 18 century dials with single hands." USED BY KIND PERMISSION OF LT. COL. BATES'S GRANDSON HUGH OLIVER-BELLASIS, PREVIOUSLY OF WOOTTON HOUSE, WOOTTON ST. LAWRENCE.

VALUATION

A rare 18 century three train turret clock of light, bed post construction, with rack ting tang quarter chimes on two bells, hourly count wheel striking on a third bell, and an anchor recoil escapement controlling the going train. The clock has two 18 century dials with single hour hands.



Laura Turner of the British Museum for her remarkable discoveries in the darkest recesses of the horological archive; Anna Rolls of the Worshipful Company of Clockmakers for her photographs and willingness to search old company minutes; Hugh Oliver-Bellasis who helped me understand his family's rich history; AHS Chairman Dr. James Nye who lugged the AHS collection of watch cocks across town to his office to take decent photos for this article; Jonathan Hills, Director of Clocks and Barometers at Sotheby's London, for his willingness to search old records on my behalf; and lastly but by no means the least is Helen Chapman of the AHS for enduring many years of my emails on this subject and her indefatigable efforts in hunting down information for me. Without the efforts of all the above, this article would not have been possible and I am deeply grateful.

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Figure 21. Dials and belfry of the turret clock at Wootton House, Manydown Park. USED BY KIND PERMISSION OF LT. COL. BATES'S GRANDSON HUGH OLIVER-BELLASIS, PREVIOUSLY OF WOOTTON HOUSE, WOOTTON ST. LAWRENCE.

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About the Author

Vincent V. Cherico Jr., CMW, is an avid collector of watch cocks. He is a graduate of the North Bennet Street School, Boston, MA, specializing in watch repair. He was awarded a Certified Master Watch Making certificate from the American Watchmakers–Clockmakers Institute in Harrison, OH. He is the author of several *Bulletin* articles, and for many years he was the owner of a professional watch and clock restoration business, Union Watch & Clock, in Providence, RI. Vin is presently employed as a toolmaker in the biomedical research and development industry. He welcomes feedback at vincherico@gmail.com.

Author's Note

While rereading my May/June 2021 *Bulletin* article "The English-Style Watch Cock Re-examined: James I through George III: Part 2," NAWCC member Luigi Petrucci of Italy noticed that in my timeline at the point marked 1762 (page 171), I stated that Thomas Chippendale published his book *The Gentleman and Cabinet-maker's Director* in 1762. This is incorrect; the first edition was published in 1754.

—Vincent Cherico (RI)

Well Worn and Welded

From *The Silent World* to the DOXA Grail

BY BRENT LUCKE (NE)

Editor's note: Brent first wrote about Gen Z's journey as wristwatch collectors in the July/August 2023 Bulletin. Here he provides a look at one person's dive into the hobby.

Some of us were born into a family in which a passion for collecting watches was cultivated; others arrived at the hobby later in life. Some people, however, were simply born to wear a watch. Alex is one of those whose story is inseparable from his love for timekeeping. A watch can be, and often is, just an accessory, something to look at and smile at. Particularly in past eras and in some niche occupations and hobbies, they were tools. Rarely and triumphantly, however, watches are a manifestation of the wearer's spirit.

An adventurer at his core, Alex grew up watching documentaries and reading about the great triumphs of the human experience. Watching Jacques-Yves Cousteau's *The Silent World* and the livestreams of the Mars rover and reading about the successes and setbacks of automotive racing, Alex was, if not for anything else, obsessive

about following and learning from his heroes. This obsession, however, did not remain an idealizing activity alone. Never one to stop at "maybe someday," Alex relentlessly aims to achieve his own perceived destiny, or "personal legend" as described in a favorite work, *The Alchemist* by Paulo Coelho (Figure 1).

While Alex dreamed of diving into the depths of the oceans and navigating the stars, his family was unknowingly fostering his passion for watches. From a Timex at age four to countless other digital "sports" watches and cheap quartz pieces, Alex could always tell you the time. In middle school, his first inklings of a passion were related to a Pebble smartwatch, of all things (Figure 2). The open-source device, a precursor to the Apple watches of today, blew his 11-year-old mind with an app that allowed him to view the live video feed from the Mars rover.

Flight, of course, came before space travel. Fitting, then, that a Seiko Flightmaster was Alex's first "watch" watch—a tool for embodying his aspirations as much as telling the time (Figure 3). Hoping to be



Figure 1. An avid backroads traveler, Alex has rode-in his BMW as well as he's worn-in his watches. PHOTO COURTESY OF ALEX KECK.



Figure 2. The discontinued smartwatch by Pebble Technology Corporation, introduced in 2013. PHOTO BY ROMA ZUR, CC BY-SA 4.0, [HTTPS://CREATIVECOMMONS.ORG/LICENSES/BY-SA/4.0](https://creativecommons.org/licenses/by-sa/4.0), VIA WIKIMEDIA COMMONS.



Figure 3. Not the Seiko mentioned, which has now been passed on to another enthusiast, but the Japanese brand hasn't been forgotten by this collector. PHOTO COURTESY OF ALEX KECK.

a pilot and starting his automotive adventures as he hit his teenage years, Alex worked as a mechanic. He then learned that perhaps his Flightmaster was "inferior" quartz and his dreams were "lower" though just as ungrounded, or maybe the shop required something tougher in a timepiece. Alex's heart returned to *A Silent World*, and he began saving for a DOXA Sub 300—the watch of his hero Jacques Cousteau.

Trading up would take time. Alex started as a mechanic in a Jiffy-Lube and eventually escalated to a local Porsche restoration shop. His desire to own his "one" never faded. At 20, six years after he began working, he could comfortably afford his DOXA grail, a milestone moment for this restoration technician and economics student. It was a watch that, in his words, "could take more than I could ever throw at it"—a theory that was tested the first day he wore it to the shop (Figure 4).

Restoring cars is a culmination of all types of automotive work. You need to have an understanding the mechanics, an encyclopedic knowledge of part numbers and equivalents, an eye for detail in paint and trim finishing, and often



Figure 4. Alex is a big NATO strap fan, often swapping out the DOXA's steel bracelet for fabric options. AUTHOR'S PHOTO.

fabrication skills like welding. Welding the rear frame of a Porsche 356 was Alex's task for the day.

His heart skipped a beat when it happened: a pool of metal dripped down, falling on a lug of his new DOXA. "I was horrified." Alex instantly ripped off his watch and, in an act of courage and, arguably, stupidity, doubled down on fixing his mistake on an angle grinder. "My hands were shaking. I had to do it . . . perfectly."

A scar, admittedly quite faint, still adorns Alex's DOXA as it makes its way across country on his motorcycle adventures. That restoration shop memory is embedded in that watch. Still considered "the one," though not his only timepiece, he plans to keep the watch forever. While Alex doesn't plan to have a massive collection, as that's "too much choice every day," he's a frequent strap swapper on his DOXA and a few other pieces: a fixer-upper Telda chronograph and a 1980s-era Breitling gifted to him by a fellow automotive enthusiast (Figure 5).

Alex says two things keep his attention on horology, and the first is his fascination with mechanics and the little machines he can wear on his wrist. His Telda came with a broken chronograph mechanism that, through some stubborn fiddling, Alex fixed. The second aspect, community, takes shape in his group of hometown friends, including his brother, his partner, and me, who are all collectors as well. The community extends to group chats, watch sites,

and podcasts like *The Grey NATO*, which fill the little downtime he has from the pursuit of his legend. It's not about value; in fact, Alex feels strange when he owns something too expensive to use hard. It's about owning a watch with a unique story and horological history and having a passion that exists for its own sake.

About the Author

Having started his career in marketing, Brent Lucke currently works as a community builder for a nonprofit community housing development organization based in Lincoln, NE. Watches have been a big part of his life, having grown up in a home with a collection of antique pocket watches and vintage advertisements. Many of Brent's childhood summers included trips to NAWCC Conventions across the country and time spent watching his dad browse eBay for deals. These experiences instilled a deep appreciation for the watch industry's history and modern developments.



Figure 5. Both acquired by chance, the Telda (A) was a quick fixer-upper job for Alex. His Breitling (B) has already served him well in a client-relations job. PHOTOS COURTESY OF ALEX KECK.

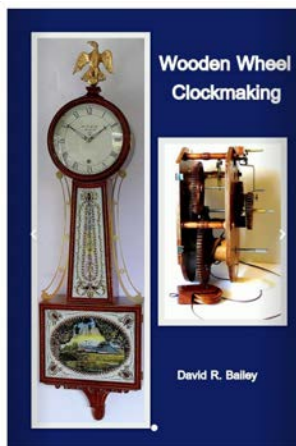
Horologica

Wooden Wheel Clockmaking

David Bailey, a prolific and longtime contributor to the *Watch & Clock Bulletin*, has adapted and expanded many of the articles he's written as the basis for a fine book about the history and manufacture of wooden movement clocks. The book starts with an amusing observation regarding his first attempt to produce a wooden movement clock in 1984: "My vision of a Black Forest clockmaker spending his winters relaxing while making clocks with a compass, knife, and saw, had faded into the make-believe." Bailey persevered and over the ensuing decades produced 14 complete wooden wheeled clocks. During that time, he also traveled and read widely about the history, materials, design work, and engineering that went into wooden movement clocks.

For the clock history buffs among us, the early chapters of the book provide a fairly concise account of the development of very early clocks in Europe, starting with the dial-less timekeeper in the city belfry in Ghent of 1377, through the development of the escapement from the inaccurate balance wheel, through slightly less accurate verge and foliot, to the very accurate pendulum. Bailey then traces the development of wooden movement clockmaking in Germany, Austria, the United Kingdom, and the United States. He begins with the early efforts at production during the 18th century, when clockmaking was a sort of cottage industry, up through the 19th-century manufacturing era, when wooden movement clocks were produced and distributed by the tens of thousands. In particular, the contributions of John Harrison and Eli Terry are elucidated, along with the broader efforts of many of their contemporaries and successors. The origins of the massive Black Forest clock industry that emerged during the 19th century is well described, and special emphasis is placed on the importance of the export market to the US and the UK, which drove innovation, production, shipping, and business practices in Germany. Anyone who follows the auction listings here in the US is no doubt aware of the numerous Pennsylvania tall case clocks that came equipped with Black Forest movements and dials.

Subsequent chapters will be of interest to engineering-minded readers, as the author discusses,



in meticulous detail, the finer points of wheel and pinion cutting, wheel counts, both deadbeat and recoil escapement fabrication, pendulum theory and construction, train calculations, weight calculations, and materials. Many graphs and charts accompany these descriptions for clarity.

Characteristics of various species of wood used for clockmaking are delved into in depth. Australian, African, European, and American woods are discussed, and the positives and negatives of each are pointed out

in some detail. The importance of seasoning wood properly is stressed, and there are comprehensive tables of woods and their characteristics in relation to clockmaking, such as ease of turning in a lathe and relative strength. The author has done extensive research regarding the effect of humidity on wooden clock movements. In Chapter 8 he shows the results of long observations of the effects of both humidity and temperature on two specific clocks, one a wooden wheel precision regulator, the other a simple verge and foliot clock, both constructed by the author.

Finally, the author describes in some detail the construction of three particular clocks. The first is a fairly complex take on a musical German clock that plays tunes on tuned glass bells, in the tradition of Glasglocken-Spieluhren. These movements were sometimes cased, but more often hung on the wall. The second example is a wooden movement banjo timepiece in the style of the Willard school, and finally an Art Deco-inspired, spring-driven timepiece with a fusee, maintaining power, and a very short pendulum. All three are interesting and well-crafted pieces.

Each chapter ends with extensive notes and references, and the book contains a bibliography and a comprehensive index on the final pages. Bailey's writing is highly readable and concise, making this book a fine addition to any horological library.

Wooden Wheel Clockmaking by David R. Bailey, 2022, 278 pages, 8 ¼" x 11 ½", paperback. ISBN 978-0-646-86582-9. Available from Boobooks Bookshop (boobooks.net.au), \$89.00 AUD.

—Peter A. Nunes, NAWCC Fellow (RI)

A Brief History of Timekeeping

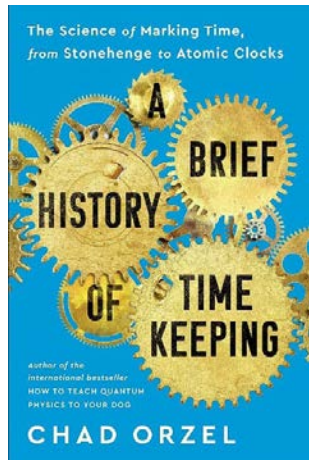
Who would *not* be interested in reading this book if you have any interest whatsoever in horology? From the author who brought us *How to Teach Quantum Physics to Your Dog* (2009) and *How to Teach Relativity to Your Dog* (2012) comes this offering on timekeeping methods.

Over the years I have read my share of horological books. To me, the most important attribute that Orzel brings to yet another book on timekeeping is his background. He is a university physics professor at Union College, Schenectady, NY, with a BA in physics from Williams College and a PhD in chemical physics from the University of Maryland, College Park. He brings a rather unique background to the specific content found in horology.

The first half of this book presents material that I am familiar with. However, the slant presented by a physics professor is readily apparent. There are 16 chapters in this book (a number that curiously coincides with most college/university semesters, one chapter per week), and Orzel admits this is a textbook for a college course he teaches. The introduction is lengthy and includes references to mechanical timekeepers and discusses the *correct* official time provided by the National Institute of Standards and Technology (NIST), among other topics.

The first eight or so chapters cover material most horologists would know: sunrise at Stonehenge, along with timekeeping by the sun, moon, and stars. Water clocks are described, along with the development of early mechanical clocks. These early chapters resonated well with me. I was familiar with the progression, but I picked up nuances I had not been aware of. In my opinion this is due to a different way of reviewing these early devices by a physics professor who knows his content *and* makes it accessible to his students and readers. These first chapters were an informative and important read. Then it got harder.

Topics that are not typically included in your run-of-the-mill books on timekeeping started to crop up. For example, the moon's eccentric orbit was presented. Since many calendars use the moon to keep track of dates, especially religious ones,



many early calendars got confused and needed adjustment. Chapter 12 is properly titled "The Measure of Space-Time." Here subjects were presented from physicists with names we know, from Newton and Maxwell to Michelson and Einstein. This is about the *time* my head began to hurt. The strategy Orzel uses to present topics such as quantum physics and relativity helps bring these difficult (for me, anyway) subjects to better light.

The last chapter presents "The Future of Time." The early cesium atomic

clock (1955) is mentioned along with the need for such a timekeeper as the Earth slows down in its rotation. Devices such as the maser and laser surface in this chapter, along with microwave sources that Orzel explains so non-physicists can gain a basic understanding of these technologies. The last few pages of Chapter 16 include a discussion of ion clocks and relativity along with optical lattice clocks. Enough said there. From sun or moon timekeeping, to Huygens's pendulum, to optical lattice clocks, Orzel correctly states that there truly is no foreseeable end to the methods for keeping time.

The book has one other feature I really appreciated: sidebars, or as Orzel calls them, "bars on the side." These sidebars "go a little deeper into the scientific principles underlying particular methods of timekeeping and have less historical content." I have always been a big fan of sidebars. Orzel uses them effectively and presents additional content to help us horologists (and others) stretch our minds a bit more and in a slightly different way. Well done!

The book is well edited and footnotes refer the reader to additional references.

A Brief History of Timekeeping: The Science of Marking Time, from Stonehenge to Atomic Clocks by Chad Orzel, 2022, 324 pages, 6" x 9", paperback. ISBN 978-1-953-29560-6. Available from amazon.com, \$12.59.

—Ken De Lucca (PA)

John Minott: Boston Ornamental and Clock Dial Painter 1771–1826

With the publication of author Paul J. Foley's latest book, *John Minott: Boston Ornamental and Clock Dial Painter 1771–1826*, the importance of Minott and his contributions to the early Boston clock trade can now be told. Like all of Foley's books, this one is meticulously researched and lavishly illustrated with high-quality color images that are among the best that he has published to date.

Foley is a recognized authority on early Boston clocks, and many may be familiar with his 2002 publication *Willard's Patent Time Pieces: A History of the Weight-Driven Banjo Clock 1800–1900* and his 2016 publication *Simon Willard Patent Alarm Time Pieces: An Exhibition of Willard Lighthouse Clocks*, which he co-authored with John Losch. Both are authoritative publications on the Willard family and their clocks and are "must haves" in any horological library.

Boston and Roxbury, MA, were home to the famous Willard family that manufactured shelf clocks, patent timepieces, or banjo clocks, and large numbers of tall clocks housed in formal Roxbury cases. Similar clocks were also produced by apprentices of the Willards, including Elnathan Taber and William Cummings. Today, clocks produced by these makers, like those of their masters, are highly sought after as examples of the finest clocks manufactured in the Boston area. While much has been written on their clocks, to date little information has been available on the allied craftsmen who worked closely with these clockmakers and provided cases, reverse-painted eglomise tablets, gilding services, or elegantly painted iron dials. In 1945, the name John Minott was first recorded as a Boston dial painter by author Carl Dreppard in his *American Clocks and Clockmakers*. From the time of this initial recording, little new information about Minott has been uncovered other than the identification of a small number of Boston dials with his signature inscribed on the rear side.

Foley has located, photographed, and documented 49 signed and numbered Minott dials produced during 1790–1805, which are the foundation



for his study that culminated in this publication. The book clearly describes key characteristics of Minott's dials, which are typically 12" or 13" with painted decorations that are close copies of those found on painted iron dials imported from Birmingham, England. They did not use a false plate and instead employed four long feet to attach the dial to the movement. Minott used the same "half map" transfer-printed hemisphere maps in the arch for all

of dials, and they can be used to identify unsigned examples from his shop. The earliest signed dials were simply inscribed "IM" or "JM" on the rear of the dial, whereas later dials were typically signed "J. Minott / No. XX" in the upper right corner. In addition, Minott used distinctive print lettering, script lettering, or Old English-style lettering for inscribing clockmaker signatures on the front of the dial, and he characteristically added a period (".") at the end. Minott did not sign all of his work, and today many unsigned Boston dials can now be confidently attributed to Minott based on Foley's research.

John Minott: Boston Ornamental and Clock Dial Painter 1771–1826 by Paul J. Foley, 2023, 48 pages, 8 ½" x 11", paperback. Available from Willard House & Clock Museum (willardhouse.org), \$25.00.

—Philip E. Morris, NAWCC Fellow (AL)

Striking Beauty Exhibit at the Morven Museum & Garden

Featuring more than 50 clocks, the *Striking Beauty: New Jersey Tall Case Clocks, 1730–1830* exhibition showcases the beautiful work of clockmakers in colonial and post-Revolutionary New Jersey.

The exhibit runs through February 18, 2024, and details about visiting the museum are available at www.morven.org.

Convention Recap

2023 NAWCC National Convention

BY LEROY BAKER, NAWCC FELLOW (WI), CATHY GORTON (CO), RICH NEWMAN, NAWCC FELLOW (IL)

The NAWCC held its annual convention during the week of July 10 in the historic city of Lancaster, PA, and at the National Watch & Clock Museum in the nearby riverside town of Columbia. This National celebrated the Association's 80th anniversary, and planning began in earnest upon executing the facility contract for the Lancaster Convention Center and Marriott Penn Square host hotel in December 2020.

NAWCC National Conventions are the largest educational horological events worldwide. This year's mart was especially lively with tables of tools, supplies, books, wristwatches, pocket watches, and clocks dating from the late Renaissance to today.

Sponsors Breitling and Brent Miller Jewelers anchored the show with large booths and hosted several lectures and attendee activities. Other major sponsors included Morgan Stanley, Cottone Auctions, RKL, GMS, Jones & Horan, Luxe Auctioneers, and Antique American Clocks. Forty-five NAWCC Chapters and approximately 55 members made donations that helped make the event fun and educational for both members and the public. A watch and clock appraisal fair was held, with experts providing appraisals: Fred Hansen, Jarett Harkness, Dan Horan, Ralph Pokluda, Tyler St. Gelais, and Brendan Sullivan. A successful promotional campaign that included special entry pricing and the appraisal fair was advertised throughout the region and attracted the highest public attendance for an NAWCC event.

2023 Convention Numbers

Member Attendance: 1,182

Public Attendance: 227

Museum Open House Attendance: est. 500

Mart Tables: 589 (98% capacity)

Convention Banquet Attendance: 263

Old Timers & Fellows Lunch Attendance: 66

Mart Silent Auction: 149 Items Auctioned

Live Auction Attendance: 180 (109 Items Auctioned)

Workshops: 19

Lectures: 16



Open House at the Museum

Due to the Convention's proximity to the Museum, the schedule was enhanced to include a full-day Open House at the Museum and the School of Horology that featured special exhibits, new galleries, backroom tours, and lectures:

- Hamilton Gallery: recently expanded and redesigned to showcase important artifacts and the history of Hamilton in Lancaster, sponsored by Hamilton Watch Co.
- Carriage Clocks Around the World: sponsored by the International Carriage Clock Chapter 195, a temporary exhibit composed of more than 50 examples, including from the early Breguet period. A companion exhibit lecture was given by Leigh Extence.
- Early History of Watchmaking in Lancaster: explores the founding of the Adams & Perry Watch Manufacturing Co. in 1874
- Harold and Maida Cherry's Skeleton Clocks: a recent donation of 35 outstanding examples
- Public Time Gallery: recently expanded and redesigned to showcase some of the Museum's phenomenal collection of tower and street clocks
- S-Town Exquisite Clocks: a temporary exhibit that tells the story of the late horologist John B. McLemore through the clocks he restored and features never-before-seen images. McLemore was the

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subject of the seven-part podcast *S-Town* from *Serial Productions* and *This American Life* in 2017 that was downloaded a record-breaking 10 million times in its first week.

- Vintage Wristwatches: a temporary exhibit curated by John Cote that presents manual wind pilot's chronographs of the late 1930s to early 1970s and explores the question of whether it should be considered a tool or a luxury watch
- Rose engine demonstrations by Brittany Cox and Roland Murphy
- Screening of the movie *Keeper of Time* followed by Q&A with its director, Michael Culyba



Education: Workshops

- Three-day live demonstration of machining and assembling a clock movement by master clockmakers David Lindow and Stephen Franke that showed foundational clockmaking skills, including turning, sawing, filing, depthing, hole placement, hand cutting, gear cutting, and pivot burnishing
- Five Horological Society of New York Workshops
 - Horology 101: Movement Mechanics (Steve Eagle, Drew Zimmerman, and Bernhard Stoeber)
- Five AWCI Workshops (Jason Champion)
 - Water Resistance: Wet & Dry Methods
 - Screwdriver/Tweezer Maintenance
- Eight NAWCC Workshops (average attendance 40, ranged from 35 to 50)
 - Casting Metal Parts for Clock Cases (John Lawrence)
 - New Technique for Removing the Glass from Antique Clock Cases (Terry Addison)

- Ten Tools for Making Clock Repair Easier (Dave Gorrell)
- Stenciling on Pillar and Splat Clock Cases (Lee Davis)
- Cleaning and Care of the Watchmaker's Lathe (Dan Neid)
- Rewaxing and Re-silvering Clock Dials, Aging Paper Dials (Rick Robinson)
- Adjusting the Lever Escapement for Watches and Platform Escapements (Philip Stoler)
- Bushing Wooden Works Clocks, in Wood, Brass or Bone (Dave Gorrell)

Education: Lectures

- Good for a Time: The Christopher R. Brown Research Archive of Early American Wooden Works Shelf Clocks (Russell Oechsle)
- Is Moinet's Compteur de Tierces the Earliest Chronograph? (Philip Poniz)
- Electrical Horology: Show and Tell (James Dutton, Hosted by Electrical Horology Society Chapter 78)
- A Brief History of Horological Illustration (Bob Frishman, Hosted by Horological Art Chapter 120)
- The London Horological Engine Turners (Seth Kennedy, Hosted by British Horology Chapter 159)
- 35 Years of Collecting Common, Unusual, and Rare Wooden American Tall Case Clock Movements (Peter Nunes, Hosted by Cog Counters Chapter 194)
- Pierre & Alfred Drocourt: Carriage Clock Makers (Leigh Extence, Hosted by International Carriage Clock Chapter 195)
- Seth Thomas #4 Tower Clock Restoration: The History, the Processes, and Lessons Learned (Frank Webster, Hosted by Tower and Street Clock Chapter 134)
- Breitling and the Evolution of the Wrist Chronograph in the 20th Century (Fred Mandelbaum, Hosted by Breitling)





- Tales of a Historic Isaiah Lukens Tower Clock Works (Stephen Smith, Hosted by Old Timers and Fellows Chapter 22)
- Panel Discussion: The Vintage Wristwatch Market: Myth vs. Reality—What to Look for and What to Believe (John Cote, Moderator; Fred Mandelbaum, Eric Wind, Charlie Dunn, Gianfranco Gentile, Hosted by Breitling)
- The Astronomical Skeleton Clock: A Machine Designed to Amaze (Mark Frank)
- Celebrating the Artistry of John B. McLemore, Horologist (Philip Morris)
- Guilloché: Its History and Application (Brittany Cox)
- The Conservation of the Great Clock of Westminster: Big Ben (Keith Scobie-Youngs)
- Campbell's Clock Shop and Its Place in 400-Day Clock History (Patrick Loftus, Hosted by International 400-Day Clock Chapter 168)
- Convention Program – Cathy Gorton (CO) and Laura Taylor (HQ)
- Convention Website – Rory McEvoy (HQ)
- Corporate Sponsors – John Cote (IN)
- Crafts Competition – Bill Slough (TX)
- Donations – the late Janet Oechsle (NY)
- Exhibits – Stan Boyatzis (AUS), Philip Morris (AL), John Cote (IN)
- Gift Shop – Evelyn Slough (TX) and Terry Zaporozec (HQ)
- Lectures – Cathy Gorton (CO)
- Live Auction – Rick Robinson (VA)
- Mart and Events Layout – Leroy Baker (WI)
- Mart Management – Sherry Kitts (TN) and Glen Kitts (TN)
- Museum and School of Horology Open House – Rory McEvoy (HQ)
- On-Site Registration – James Dutton (FL), Marlo Davis/Tina Manley (HQ)
- Pre-Registration – Leroy Baker (WI), Dale Beske (WI), and Tina Manley (HQ)
- Project Management – Peggy Goodwin (OH) and Sarah Gallagher (HQ)
- Scheduling – Rich Newman (IL) and Cathy Gorton (CO)
- School of Horology Classes – Ken De Lucca (HQ)
- Security – Bob Burton (KY)
- Signage – Peggy Goodwin (OH)
- Silent Auction – Craig Ankeney (OH) and Tim Rawlings (OH)
- Treasurer – Melanie Bernhardt (OH)
- Volunteer Recruitment – Renee Coulson (TN)
- Workshops – David Gorrell (VA)

Volunteers

Approximately 75 volunteers are needed to put on a show of this magnitude, and the NAWCC is blessed to have many generous, smart, and dedicated members who are willing to help. None of them request or receive compensation of any kind, whether free registrations or travel reimbursement. This includes the Board of Directors, National Committee Chairs, and volunteers. A huge thank you goes to all our volunteers and our leads, listed below, and our terrific staff at headquarters (HQ), who were essential in the planning and execution every step of the way.

- Advertising & Promotion – Tim Orr (CO) and Laura Taylor (HQ)
- Audio/Visual – Geoff Parker (TN), Rich Newman (IL), and Alex Simpkins (HQ)
- Awards – Bob Pritzker (CAN) and Marlo Davis (HQ)
- Banquets – Judy Draucker (VA)
- Contracts – Rich Newman (IL) and the late Jim Price (KS)

Save the Date!

Next year's convention will be held in Chattanooga, TN, on June 13–16, 2024. Details will be posted online (www.natcon.nawcc.org) and in publications.

Convention Donors

BANQUET GRAND PRIZES

Thümm & Co. – Two Wristwatches

BANQUET SILENT AUCTION DONATIONS

Brent Miller Jewelers – Hamilton Khaki Field Watch and a Weekend Stay at the Hamilton Factory Luxury Apartment

Bryan Mumford – MicroSet Clock Timer

Lancaster Marriott at Penn Square – 2-Night Stay

CRAFTS COMPETITION PEOPLE'S CHOICE AWARD

Donegan Optical Company, in Memory of Bill Donegan – Handblown Glass Trophy

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Old Timers & Fellows Ch. 22

Buckeye (OH) Ch. 23

Tower & Street Clock
(Spec Int) Ch. 134

British Horology
(Spec Int) Ch. 159

Big Bend Timekeepers (FL)
Ch. 176

Susquehanna (PA) Ch. 193

International Carriage
Clocks (Spec Int) Ch. 195

Antique American Clocks

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Beauton Hogwood

Ken Hogwood

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Bryan Mumford

Rich Newman

Paul Schilling

William Tatum

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Carolina (NC) Ch. 17

Old Dominion (VA) Ch. 34

Kentucky Bluegrass (KY)
Ch. 35

Central New York (NY) Ch. 55

Great Plains (NE) Ch. 58

Sunflower Clock
Watchers (KS) Ch. 63

Jean Ribault (FL) Ch. 68

Palm Beaches of Florida (FL)
Ch. 99

Green Mountain Timekeepers
Society (VT) Ch. 109

San Jacinto (TX) Ch. 139

Granite State Timekeepers
(NH) Ch. 189

INDIVIDUALS – GOLD (\$200-\$499)

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Howard Cohen

Judy Draucker

H. Vance Johnson Jr.

Virginia A. LaFond

Larry Laird

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Ohio Valley (OH) Ch. 10

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Indiana (IN) Ch. 18

New Jersey (NJ) Ch. 25

Toronto (Intl) Ch. 33

Heart of America (KS) Ch. 36

Allegheny (PA) Ch. 37

Magnolia (MS) Ch. 41

Tennessee Valley (TN) Ch. 42

King Cotton (TN) Ch. 48

Los Padres (CA) Ch. 52

Inland Empire (WA) Ch. 53

Alabama (AL) Ch. 54

Central Illinois (IL) Ch. 66

San Fernando Valley (CA)
Ch. 75

Peace Pipe (IN) Ch. 83

Mt. Ranier (WA) Ch. 135

Central Jersey (NJ) Ch. 142

Connecticut (CT) Ch. 148

Daytona Beach (FL) Ch. 154

Keystone Ch. (PA) 158

Boulder Horological
Society (CO) Ch. 160

Watauga Valley (TN) Ch. 162

Madison (WI) Ch. 171

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(Spec Int)

American Clock &
Watch Museum

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Thank you to all of our sponsors, donors, members, and Chapters!

Convention Recap

2023 Crafts Competition

BY WILLIAM "BILL" SLOUGH (TX)

The 2023 National Convention in Lancaster, PA, was wonderful. Among the highlights of the Convention was the beautiful display of entries in the National Crafts Competition.

The Crafts Committee would like to thank the entrant who came from Italy and all the entrants from the United States. This year we had an international representation, and we hope this will continue as more international Chapters join the NAWCC and attend Conventions.

I would like to thank the Crafts Committee for their work in putting on the Competition. They helped check in entrants, made sure they filled out forms and placed their items in the room. They also helped visitors view the entries and vote for their favorite one, assisted with the tabulation of the judging, and displayed ribbons and medals for the winners.

Entries were submitted for 11 out of 26 classes, offering a variety of items to view. The Crafts Committee thanks each contestant for their work and effort in bringing their items to the Competition.

The entry form and rules for the 2024 National Craft Competition are in the November/December 2023 issue of *Mart & Highlights* and at nawcc.org/about/document-library > Committee Documents > Crafts Committee.

List of Winners

People's Choice Award—Jacob R. Curtis**Class 1 Single-Train Clock Movements—Metal****1ST PLACE:** Jacob R. Curtis**2ND PLACE:** Bruce Weeks**3RD PLACE:** Mike Everman**Class 4 Complicated Clock Movements****1ST PLACE:** Robert Barchi**Class 5 Experimental Timepiece Design****1ST PLACE:** Bruce Weeks**2ND PLACE:** Mike Everman**3RD PLACE:** Greg Allison, Mahlon Shetler**Class 7 Other Material Clock Cases****1ST PLACE:** Robert Barchi**2ND PLACE:** Robert Barchi**Class 9 Watch Cases Any Material****1ST PLACE:** John Huber**Class 10 Watch Restoration****1ST PLACE:** Dave Cooper**Class 12 Clock Restoration****1ST PLACE:** Greg Allison, Mahlon Shetler**2ND PLACE:** Greg Allison, Mahlon Shetler**Class 15 Reverse Painting on Glass—Litho-Transfer****1ST PLACE:** Lee Davis**Class 20 Woodcarving****1ST PLACE:** Mick Marhevka**2ND PLACE:** Mick Marhevka**Class 23 Horological Tools—New or Reproduction****1ST PLACE:** Bruce Weeks**Class 25 Chapter Clock Restoration****1ST PLACE:** Philadelphia Chapter 1

2023 People's Choice Award Winner: Jacob R. Curtis ▶

Also Voted 1st Place:

Class 1 Single-Train Clock Movements—Metal

This month-running wall hanging precision pendulum clock was constructed over a two-year period, beginning in January 2021. The movement uses the Glashütte style of Graham deadbeat escapement and Harrison's maintaining power. The clock utilizes hardened and polished 12- and 16-leaf pinions throughout. The train uses screwed gold-plated chatons with sapphire jewels from the third wheel through the pallet arbor. The pendulum uses an invar rod with twin cylinders and an adjustable temperature compensation unit. The pendulum is also compensated for changes in barometric pressure using symmetrically mounted aneroid capsules.

The dial is silvered and lacquered brass, featuring a traditional regulator layout with separate displays for hours, minutes, and seconds and was hand engraved by Thierry Duguet of Charlottesville, VA. The case is ebonized mahogany with beveled glass panels, constructed by Modern Boy Woodshop of Staunton, VA. The beveled glass was provided by Dulles Glass and Mirror, the aneroid capsules were supplied by Beck GmbH, and the jewel bearings were provided by Dinnie Hoekstra. All other design, fabrication, and finishing tasks were performed by Curtis. Some components used CNC milling, which was programmed and executed by Curtis.

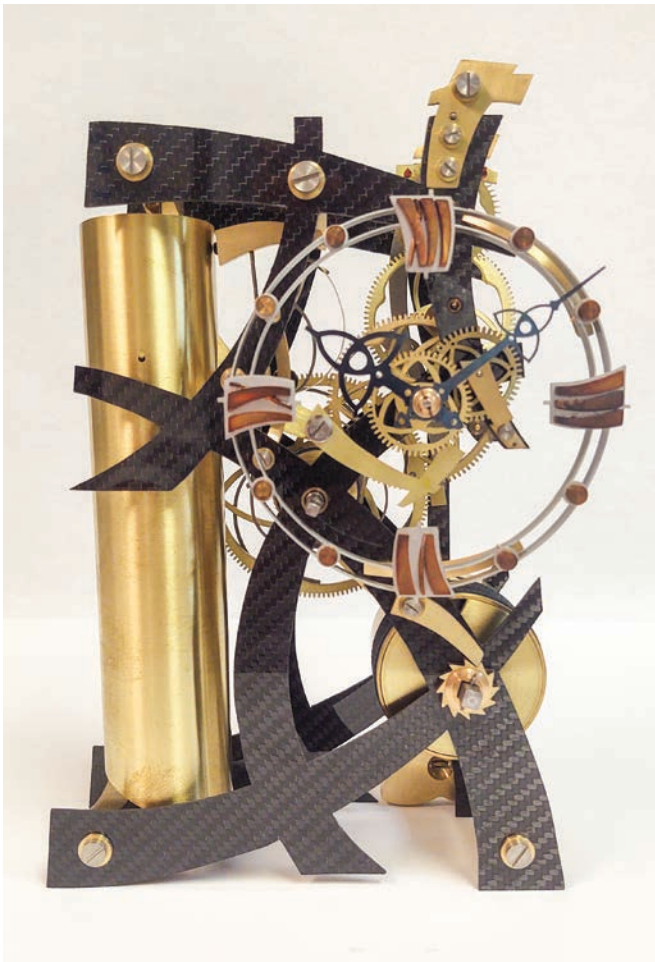


Class 1 Single-Train Clock Movements—Metal

2ND PLACE: Bruce Weeks ▼

**Also Voted 1st Place:
Class 5 Experimental Timepiece Design**

Dial design and construction give a nod to traditional design, with a modern twist. The frame is three dimensional with numeral plates reminiscent of original styles but befitting the updated design. Handmade copper numerals and hour pips were sulfur patinized to contrast against the gloss black plates. Hands were CAD designed and laser cut from blued spring steel.



3RD PLACE: Mike Everman ▲

**Also Voted 2nd Place:
Class 5 Experimental Timepiece Design**

M1 is a continuous motion three-wheel table clock with no resonant element or escapement. Its rate is entirely controlled by the frictionless drag of rotating an aluminum wheel through a strong magnetic field. It is the continuous motion train I will be using in a high-accuracy pendulum clock that is still in development but keeps good enough time by itself to be a standalone clock. The eddy current damping method is analogous to the use of conical pendulum governors used by Bond and Lord Grimethorpe.

Class 4 Complicated Clock Movements

1ST PLACE: Robert Barchi ▼

Also Voted 1st Place:

Class 7 Other Material Clock Cases

This is a month-going tabletop regulator that beats full seconds using a coup perdu escapement in conjunction with a half-second pendulum. The clock is driven by constant torque springs built into the base of the case, eliminating the need for fuseses. Actual run time is about 40 days.

The pendulum rod is carbon fiber, with the bob suspended in its center of mass.

Miniature ball bearings are used throughout to minimize friction and enable the long run time, while still having sufficient power reserve to operate the complications.

Complications include a perpetual calendar with day, date, and month, all corrected for leap year. This is my modification of a design by Brockbank, originally intended for tall case clocks. Also included is a moon phase indicator with a train accuracy of about 1 part in 400. The calendar and moon phase are mounted on carbon fiber disks to reduce inertia when advancing. The case is made from mahogany and glass.



Class 5 Experimental Timepiece Design

3RD PLACE: Greg Allison and Mahlon Shetler ▲

The American Mystery Clock was built circa 1943 by Charles Allison, a watch repairer by trade who also designed and built several clocks.

Class 7 Other Material Clock Cases

2ND PLACE: Robert Barchi ▼

The case was fabricated entirely from brass stock, columns were fluted with a ball mill, and edges were formed with a carbide router bit (not for the faint of heart!). Currently, the case has plain glass sides, but I do intend to have beveled glass panels made to fit.



Class 9 Watch Cases Any Material

1ST PLACE: John Huber ▲

Class 10 Watch Restoration

1ST PLACE: Dave Cooper ▼

I restored a late 16th-century half-quarter fusee verge repeater by Elias Muelinger of Germany.

The restoration process, totaling approximately 30 hours, included the following steps:

- Re-bush and lower the contrate wheel and fit a new tooth.
- Adjust the escape wheel for wear.
- Find and adjust the bent tooth in the third wheel.
- The center wheel was interfering with a wheel in the strike train; the wheel had to be bushed to raise it out of the way.
- Re-bush the third wheel.
- The fusee stop was missing, so a new one had to be designed and fitted to the



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movement, requiring assembling the movement with the barrel and fusee to adjust the proper clearances (not easy).

- A pair of period-style hands had to be fitted, as the original ones were missing; these are unique hands for the period.
- The governor for the strike train was missing; a new one was designed and made and fitted with a period six-leaf pinion matching to the adjacent wheel (very time consuming).
- Three incorrect late screws were replaced with period screws.
- The upper balance pivot had to be burnished.
- The correct period fusee chain was made from period chain sections.
- Period taper pins were fitted to the movement.
- Fourteen silver rivets were made to replace those missing from the case.

Class 12 Clock Restoration

1ST PLACE: Greg Allison and Mahlon Shetler ▼
The Mini Grandfather Clock was built by Charles Allison in approximately 1950.



2ND PLACE: Greg Allison and Mahlon Shetler ▲
The World Clock was made in 1952 by Charles Allison.



Class 15 Reverse Painting on Glass—Litho-Transfer

1ST PLACE: Lee Davis ▲



Class 23 Horological Tools—New or Reproduction

1ST PLACE: Bruce Weeks ▲

Trillium flourish machining fixtures were designed for a Sherline lathe, showing how complex machining operations can be completed with fairly easy-to-make fixtures.

Class 25 Chapter Clock Restoration

1ST PLACE: Philadelphia Chapter I ▼



Class 20 Woodcarving

1ST PLACE: Mick Marhevka ▲

This is a hand-carved walnut splat depicting two griffins defending the Federalist shield. It was designed for the top of an 1830s-era Groaner clock.

2ND PLACE: Mick Marhevka ▼

This is a hand-carved splat depicting an eagle heralding a Federalist shield. It was designed for the top of an 1830s-era Terry-style column and splat clock.



Author Thank You 2023

Editor's note: We thank all of our 2023 writers for their hours of research, writing, and rewriting. We all have benefited from their labors. The authors are listed alphabetically with brief bios and a list of articles and features published in 2023.

Stephen Barasi

Stephen Barasi trained as a physiologist in London then for a higher degree in neuroscience in Edinburgh. He worked as an academic researching in the field of sensory neuroscience and teaching medical and science students. After retirement he became interested initially in 18th-century long case clocks then in English lantern clocks. He is particularly interested in linking early lantern clocks to the history of early and mid-17th-century London. • No. 463 "A Rare and Early Oxford Lantern Clock by Richard Quelch" • No. 464 "Phase 2 of the Quelch Lantern Clock Restoration: A Perilous Journey"

Vincent Cherico

Vincent V. Cherico Jr., CMW, is an avid collector of watch cocks. He is a graduate of the North Bennet Street School, Boston, MA, specializing in watch repair. He was awarded a Certified Master Watch Making certificate from the American Watchmakers-Clockmakers Institute in Harrison, OH. He is the author of several *Bulletin* articles, and for many years he was the owner of a professional watch and clock restoration business, Union Watch & Clock, in Providence, RI. Vin is presently employed as a toolmaker in the biomedical research and development industry. • No. 465 "The English-Style Watch Cock with Portraits of King George III" • No. 466 "The Rediscovered Watch Cock Collection of Lt. Col. Arthur Sydney Bates"

Harold Cherry

Harold Cherry is an actuary by profession. He retired after 33 years with New York Life as vice president and actuary. Subsequently, he consulted for AXA Equitable for 17 years. He was also an author and publisher of study manuals for the actuarial exams for many years. His horological collecting and research interests include skeleton clocks and clocks of the Boston Clock Co., and other companies that Joseph Eastman was associated with. He is a past president of NAWCC Long Island Chapter 88, which has since merged with New York Chapter 2. • No. 465 "My Horological Journey"

Raymond Comeau

Ray Comeau is a current lecturer on management, literature, and philosophy in Harvard Extension School. Formerly, he served as Associate Dean of Management Studies and Director of Foreign Language Instruction in the same institution. He is a member of NAWCC Chapters 8 and 87 in his native Massachusetts. Poems: • No. 461 "Time's Lullaby" • No. 462 "A Shepherd's Final Tick" • No. 463 "What a Time for the Children" • No. 464 "Leaping into a Patek Frankenstein" • No. 465 "A Letter to Time" • No. 466 "Friends Through Fathoms of Time"

Geoff Cox

Geoff Cox has been interested and involved in early clocks since he was a student roaming museum collections and NAWCC events during summer holidays. Completing an education at Michigan State University, the work travel that followed allowed the opportunity to network with important collectors such as Norman Langmaid and others who were enthusiastic in sharing their collections and vast experience with early English clocks. After retiring from a commercial scientific career spanning the US and UK, he shares decades of restoration experience and knowledge with others through Earlyclocks.uk. • No. 463 "A Rare and Early Oxford Lantern Clock by Richard Quelch" • No. 464 "Phase 2 of the Quelch Lantern Clock Restoration: A Perilous Journey"

Andrew Dervan, NAWCC Silver Star Fellow

Andrew Dervan began collecting antique clocks in 1997 and joined the NAWCC. He found clock collecting to be a fascinating hobby, and his principle collecting interest is 19th- and 20th-century weight-driven clocks, particularly banjo clocks. Researching the manufacturing histories of various makers and companies was more challenging than simply collecting; he has published many articles in the *Watch & Clock Bulletin*, the American Clock and Watch Museum's *Timepiece Journal*, and *Clocks Magazine*. In 2011 Andy retired from DuPont Performance Coating, volunteered at The Henry Ford, and continues his horological research. In 2011 he became an NAWCC Fellow, in 2016 he was awarded

the NAWCC's James W. Gibbs Literary Award, and in 2017 he became an NAWCC Silver Star Fellow. • No. 461 "Daneker Clock Co." • No. 466 "The Sad Tale of the Manistee Watch Co."

Damon Di Mauro

Damon Di Mauro teaches in the Department of English, Languages, and Linguistics at Gordon College in Wenham, MA. • No. 461 "Edmund Currier Revisited"

Robert Gary, NAWCC Fellow

Robert Gary has been a member of the NAWCC since 1999, is an NAWCC Fellow, and is currently a member of Ventura and Santa Barbara County (CA) Chapter 190. He has published several articles in the *Watch & Clock Bulletin* over the years. • No. 462 "Adjusting Swinging-Baton Grasshopper Clocks"

Clint Geller, NAWCC Silver Star Fellow

Clint Geller is a materials physicist living and working in Pittsburgh, PA, as a Senior Advisor Scientist for Materials Design, Inc. He is the author of two NAWCC books and author or co-author of 15 previous *Bulletin* articles. He chaired two NAWCC national seminars, and he guest-curated a special exhibit on Civil War timepieces at the National Watch & Clock Museum. Clint was made an NAWCC Fellow in 2003 and a Silver Star Fellow in 2022, and he received the NAWCC's James W. Gibbs Literary Award for excellence in horological literature in 2009. • No. 463 "The Genesis and Development of the Model 1862N E. Howard & Co. Pocket Watch Movement: Part 1" • No. 464 "The Genesis and Development of the Model 1862N E. Howard & Co. Pocket Watch Movement: Part 2"

Peter Gosnell

Peter Gosnell joined the NAWCC in 1997 and between 2001 and 2008 made yearly visits to the US to study the development of the Connecticut brass clock movement with the guidance of the late Dr. Snowden Taylor. Subsequently, Peter's research has focused on early industrialized clockmaking in England, with a number of articles on the subject published in the *Bulletin*. • No. 461 "The Atlantic Clock Works of Birmingham, England, Revealed: Part 1" • No. 462 "The Atlantic Clock Works of Birmingham, England, Revealed: Part 2" • No. 463 "The Atlantic Clock Works of Birmingham, England, Revealed: Part 3" • No. 464 "The Atlantic Clock Works of Birmingham, England, Revealed: Part 4" • No. 465 "The Atlantic Clock Works of Birmingham, England, Revealed: Part 5" • No. 466 "The Atlantic Clock Works of Birmingham, England, Revealed: Part 6"

Keith W. Henley

Keith Henley is co-owner of an electric and plumbing company in Sewanee, TN. He attended Tennessee Technology Center in Shelbyville, TN, for electrical and IT systems. Keith joined the NAWCC in 2005 after meeting with Walt and Joanne Wilson and Jim and Renee Coulson at the Breslin Tower Clock in Sewanee, TN. Since that time, Keith has served as the caretaker of the tower clock. He is a member of Tower and Street Clock Chapter 134 and British Horology Chapter 159, and he served as a vice president and president of Rocket City Regulators Chapter 61. Keith is currently serving on the NAWCC Chapter Relations Committee and has volunteered at Regionals and National Conventions for years. • No. 465 "How a Model A Ford Helped a Tower Clock"

Ken Hogwood, NAWCC Silver Star Fellow

Ken Hogwood is a retired businessman living in Port Orange, FL. He has been a member of the NAWCC since 1999. Ken is a collector, researcher, and restorer of antique carriage clocks. He also enjoys presenting PowerPoint programs, which he creates from his travels and research projects, at local Chapter meetings and Regionals. He is a founding member of the International Carriage Clock Chapter 195 and currently is vice president. He also is a member of Florida Suntime Chapter 19, Jean Ribault Chapter 68, and British Horology Chapter 159. Ken has been involved in many Regionals in Florida and Tennessee, serving as exhibit chairman and/or program chairman. • No. 462 "Made in America: Carriage Clocks"

C. Stuart Kelley

C. Stuart Kelley is a retired nuclear physicist who spent his career working for the US Defense Department. He has published numerous articles on nuclear weapons' effects, solid-state physics, chemistry, mathematics, and optics. His horological interests center on early English clocks and the physics of the pendulum. • No. 462 "Regulating a Pendulum's Timekeeping"

Brent Lucke

Having started his career in marketing, Brent Lucke currently works as a community builder for a nonprofit community housing development organization based in Lincoln, NE. Watches have been a big part of his life, having grown up in a home with a collection of antique pocket watches and vintage advertisements. Many of Brent's childhood summers included trips to NAWCC Conventions across the country and time spent

watching his dad browse eBay for deals. These experiences instilled a deep appreciation for the watch industry's history and modern developments. • No. 464 "Changing Times"

Rhett Lucke

Rhett Lucke has been a member of the NAWCC since 1984 and currently serves as Chairman of the NAWCC Board of Directors. He has contributed to and written numerous *Bulletin* articles as well as participated in the NAWCC Time Symposium on railroad timekeeping. He led an NAWCC project to raise funding for and to coordinate scanning of the Hamilton factory ledgers, available online for NAWCC members at nawcc.org/research/company-records/hamilton-serial-number-search. Rhett is a graduate of the University of Nebraska, with a BS in engineering. In his 35-year career, he has held a variety of engineering and management positions prior to his current role of managing new product launches for a large manufacturer of off-road equipment. His horological interests include American watches and chronometers intended for the American market. • No. 463 "Charles Vander Woerd's Chronometer"

Joseph Malpeli

Joseph G. Malpeli, professor emeritus, Department of Psychology, University of Illinois, devoted his career to understanding how visual information is processed in the brain and to the teaching of biological psychology and neuroscience. He received an undergraduate degree in biology at MIT in 1967 and, after two years in the army, a PhD in physiology at The Johns Hopkins School of Medicine in 1974. After postdoctoral research at MIT from 1974 through 1977, he took up a faculty position in the Department of Psychology, University of Illinois at Urbana-Champaign, from which he retired in 2008. His research utilized unique optical, mechanical, electronic, and neurosurgical equipment, most of which he designed and built himself. An inclination to make things extends to his hobbies, and over the years he established the home shop in which he works on clocks. • No. 465 "Efforts of a Novice Clockmaker"

Jerry Maltz, NAWCC Fellow

Jerry Maltz is a US Army veteran and an infantry BAR man. He was formerly the proprietor of a trucking business and then an employee of a Fortune 500 company. Now retired, Jerry shares his passion for clock collecting with his wife, Millie. He is a member of three NAWCC Chapters and a former president of New York Chapter 2. He has attended every NAWCC

National Convention since 1983 and is the author of *Baird Advertising Clocks*. In 2018, Jerry became an NAWCC Fellow. • No. 464 "My Ongoing Obsession with Baird Advertising Clocks"

David Moline

David Moline is an engineer in the Department of Electrical and Computer Engineering at Clemson University. David's horological interests are high-precision timepieces and the instrumentation of mechanical systems to investigate their experimental behavior. • No. 463 "E. Howard Street Clock Movement Model '00'"

Alan Myers

Alan Myers is Emeritus Professor of marine zoology at the National University of Ireland. He has written books for IWC Schaffhausen on its earliest pocket watches together with articles on Swiss full-plate watches, Bonnicksen karrusels, and E. Howard watches. He has researched IWC pocket watches for more than three decades. • No. 461 "Frederick F. Seeland and IWC, Switzerland" • No. 463 "The Genesis and Development of the Model 1862N E. Howard & Co. Pocket Watch Movement: Part 1" • No. 464 "The Genesis and Development of the Model 1862N E. Howard & Co. Pocket Watch Movement: Part 2" • No. 465 "The Cases of the International Watch Company's Jones Watches"

NAWCC Staff

NAWCC staff members have written features and articles throughout 2023.

Christopher Storb

Christopher Storb is a furniture conservator, woodworking historian, and wood artist. • No. 462 "An Extraordinary Lancaster Clock Case"

Allan Symons, NAWCC Fellow

Allan Symons has authored 10 articles for the *Bulletin*. His focus remains on sharing the stories of companies that made clocks in Canada starting in the 1870s. Celebrating its 24th anniversary in 2023, the Canadian Clock Museum (www.canclockmuseum.ca) in Deep River, Ontario, promotes Canadian horology and answers questions about inherited and found clocks. • No. 466 "A Circa 1910 W. A. Wood Globe Time Recorder Clock"

Adrian van der Meijden

Adrian van der Meijden MD, PhD, is a retired urologist. He has been an IWC collector for more than 30 years and the author of many articles on the history and watches from IWC. • No. 461

“Frederick F. Seeland and IWC, Switzerland” • No. 465
“The Cases of the International Watch Company’s
Jones Watches”

Dimitrie Vicovanu

Dimitrie Vicovanu, an NAWCC member and watchmaker for more than 39 years, works in New York City’s jewelry district. Poem: • No. 461
“Appointment in Time”

John Wagner, NAWCC Fellow

John Wagner is a professor in the Department of Mechanical Engineering at Clemson University. He fondly remembers the cuckoo and Westminster chime wall clocks that sounded throughout the day and night at his grandmother’s home, thus kindling his fascination with timepieces. • No. 463 “E. Howard Street Clock Movement Model ‘00”

Robert C. Wiseman

Robert C. Wiseman is a retired professor of education at Eastern Illinois University. He holds a doctoral degree from Indiana University in educational communications. Although retired, he continues to write and serve as a consulting editor for *TechTrends*, a juried publication of the Association for Educational Communications and Technology. His work in watches and clocks began with an Elgin watch his grandfather gave him. After being told it could not be repaired, Robert began to teach himself how to repair watches. He currently has a rather large collection of watches and clocks. • No. 462 “The Ageron Clock/Watch Restoration”

Yifan Xu

Yifan Xu is a graduate student at Clemson University studying the design and optimization of mechanical systems. • No. 463 “E. Howard Street Clock Movement Model ‘00”

Column Contributors

Horologica: • No. 462—Ed Fasanella, NAWCC Fellow; Graham and Sallie Mulligan; • No. 466—Peter A. Nunes, NAWCC Fellow; Philip Morris, NAWCC Fellow; Ken De Lucca

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Keeping Time with the School of Horology: • No. 463—Paul Kraus, Ken De Lucca; • No. 465—Bill Forney

Library and Museum Connections: • No. 463—Ralph Pokluda, NAWCC Silver Star Fellow

Research Activities and News: • No. 461—Tyler St. Gelais, Edwin Fasanella, NAWCC Fellow; • No. 462—Gregory Gerard Allison; Mahlon Shetler; Andrew Dervan, NAWCC Silver Star Fellow; Edwin Fasanella, NAWCC Fellow; • No. 463—Jim DuBois, NAWCC Fellow; • No. 464—Thomas L. De Fazio, NAWCC Fellow; • No. 465—Al Comen, Mary Jane Dapkus, NAWCC Fellow

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In Memoriam

Ben E. Fulbright, NAWCC Fellow

Ben Fulbright was born on January 23, 1942, and died on July 12, 2023. I met Ben in 1977 when I answered a "Clocks for Sale" ad in the *Houston Chronicle* and wound up purchasing an OG from him for \$35. He encouraged me to join the NAWCC at our first meeting. He had hundreds of clocks and I kept going back to buy more. At first he was a tough negotiator, but as time went on he lightened up and we became great friends.

At some point he asked me to go with him to a big monthly flea market in Texas known as First Monday. It was a blast. He was so smart about so many things, and I just loved listening to him talk.

We were both members of Southwestern (TX) Chapter 15, and later we were charter members of San Jacinto (TX) Chapter 139.

Ben was always encouraging me to get out of my comfort zone to speak at our Chapter meetings, to put on demonstrations, to do exhibits at our Regionals, and to speak with him at the 2010 National Convention in New Orleans.

He would invite me to help him repair clocks all around Texas, to go look at a collection for sale, or to help him and his wife of 56 years, Heidi, set up their booth at the Round Top Antique Festival. It was always fun and always educational. I became



the "brother he never had," he said. The feeling was mutual.

Ben was always thinking and contributing to the conversation. One of his many focuses was how to increase our NAWCC's flagging membership; he had served on the NAWCC Membership Committee. Ben wrote an extensive booklet on tips for clock repair and case refinishing titled *Tips & Tricks for Restoring Old Clocks (and a Bit More)*.

After college, Ben worked as a teacher. Math and physics were two of his many strong suits. In 1967 he went to work for NASA in Houston.

He was assigned to support the training of the astronauts who flew on Apollo. He stayed with Apollo and into Skylab. In the 1980s he worked on the Space Shuttle program. Ben continued to be involved mostly with training but was also assigned to work on payloads, engineering maintenance, and data management. From the late 1980s until he retired in the late 1990s, he worked at training facilities development.

Ben was a phenomenal friend who always had time to listen. I knew, one day, I would write this obituary, but it came years too early. As a mentor and "brother," he will be greatly missed by so many.

—Andy Staton, NAWCC Fellow (TX)

In Memoriam

Marvin Richard Edwards, NAWCC Fellow

King Cotton (TN) Chapter 48 is sad to report the loss of our beloved and longtime member Marvin Richard Edwards. Marvin was born on February 8, 1928, and passed away on August 1, 2023.

Marvin had many accomplishments in his 95 years. As a veteran of the US Army, Marvin wore his veteran's hat all the time. He would tell people that he wore the hat for the men and women who did not return home. Marvin was a native Memphian and attended Memphis State University. He was employed at Sears, Roebuck and Co. for 42 years.

Marvin joined the NAWCC on August 1, 1968. He had a sincere passion for



preserving the beauty and functionality of vintage timepieces. So many people (including myself) have benefited from his devotion to teaching others the art and science of horology. At one time he had 100 clocks on shelves or hanging on the wall in his den.

Marvin was preceded in death by his beloved wife of 67 years, Margarett V. Edwards, who was also a member of our local Chapter.

Marvin will be missed by numerous family members and friends.

—Ray Smith (TN)

In Memoriam articles for the *Watch & Clock Bulletin* are written to mark the passing of an NAWCC member. Submission guidelines are as follows:

- A maximum of 550 words submitted in a Word document (no PDFs). Including birth-death dates is recommended. Text will be edited for grammar, spelling, style, and word count.
- Images are optional, and there is typically a limit of one image. High-resolution images are preferred (a minimum of 300 dpi or 1,000 kb) and must be submitted as a separate JPG or TIF file. Do not embed the photo in the Word doc. Images of very low resolution/quality may be rejected.
- The author's name and state must be included.
- An In Memoriam will be printed in the next *Watch & Clock Bulletin*. Deadlines are the first of the month, 60 days prior to publication (e.g., the deadline for the March issue is January 1).
- Send Word docs and JPGs or TIFs to editor@nawcc.org.

In Memory Of

We recognize here those individuals and Chapters whose gifts to the NAWCC were given in memory of fellow members.

George Hudson given by Peter A. Nunes

Robert Messersmith given by Charles & Teresa Buttz

Janet Oechsle given by William & Rosemary Tinsley

Janet Oechsle given by Western New York Chapter 13

Janet Oechsle given by Andrew H. & Linda I. Dervan

Janet Oechsle given by Mary Jane Dapkus

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Janet Oechsle given by Pam Lindenberger

Bruce Sailes given by Andrew Reese

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Reese M. Wills Sr. given by Reese M. Wills Jr.

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