BULLETIN

Sept/Oct 2024
Vol. 66
No. 471

Journal of the National Association of Watch & Clock Collectors, Inc.

Fontaine's

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September 28th & October 26th, 2024

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Floor Regulator
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Astronomical
Hanging Regulator
$109,250.00

E. Howard & Co.
No. 43 Astronomical
Floor Regulator
$254,100.00

E. Howard & Co.
No. 47
Astronomical
Hanging Regulator
$356,950.00

E. Howard & Co.
No. 61 Astronomical
Floor Regulator
$195,500.00

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No. 46 Astronomical
Floor Regulator
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Aubert &
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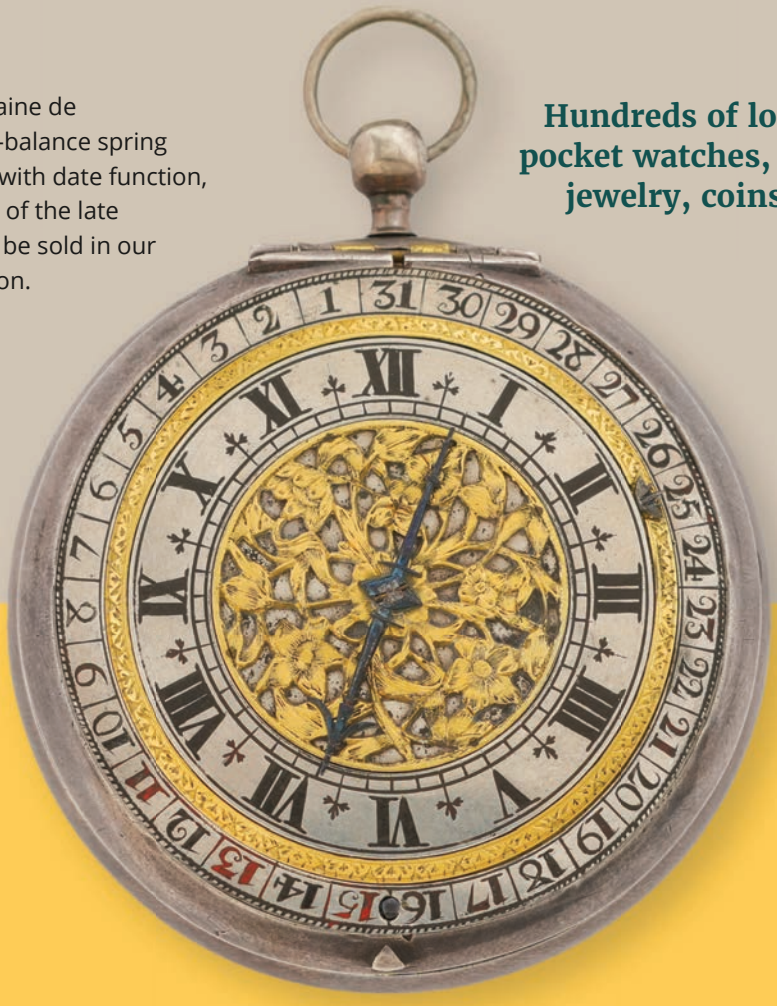

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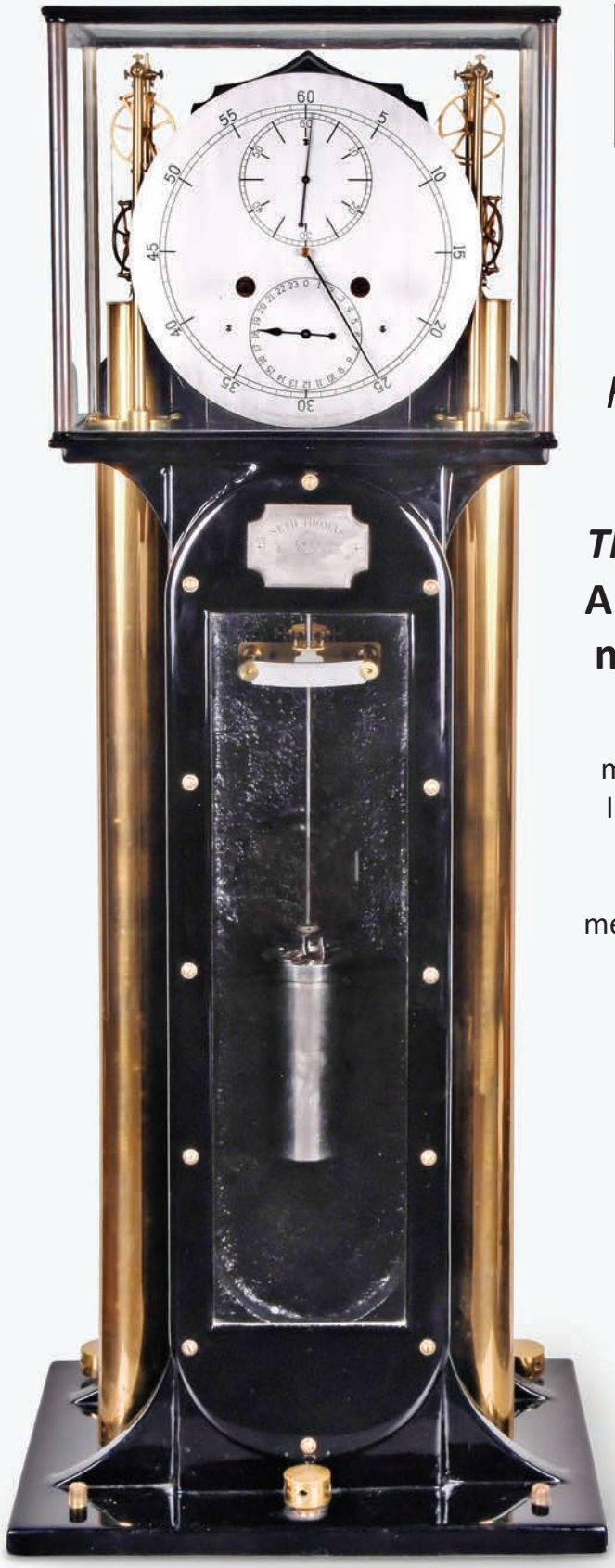

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National Association of WATCH & CLOCK Collectors, Inc.

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Membership: Details are available at nawcc.org/join or by calling Member Services at 717.684.8261 (option 1) or emailing membership@nawcc.org.

ABOUT THE COVER

A detail of Ken Johnson's replica of John Harrison's 18th-century regulator graces the front cover. On page 466, an article by the late Bob Holmström presents data on how environmental changes may cause the pendulum to move in a complicated way. *Photo by Don Saff.*

WHERE IS TOMMY TICKER?

In each *Bulletin,* Mr. Ticker is hiding. If you find his image as shown here, email editor@nawcc.org with your name and the page number and his location. Mr. Ticker's location in the July/August issue is revealed on page 562. Entries are due by the 1st of the month before publication. Good luck!

MESSAGE FROM THE BOARD CHAIR

I write this column having recently returned from another incredible National Convention where attendees enjoyed an active mart, a full schedule of lectures, a well-attended auction, a wonderful exhibit, and a display of our members' talents in the crafts competition. Promotion on local television, prior to and during the Convention, helped attract attendees on the public day, which helped drive new memberships. This year's exhibit featured displays from some of our Specialty Chapters: British Horology Chapter 159, Horological Art Chapter 120, Tower and Street Clock Chapter 134, Cog Counters Chapter 194, International Carriage Clock Chapter 195, and a special exhibit of wristwatches. My thanks to the Chapters and individuals who worked to transport and set up these exhibits for the Convention. The lectures also saw strong attendance thanks to the excellent presenters: Bob Frishman, Patrick Hagans, Jennifer Crutchfield, Konstantin Protassov, Vin Cherico, Doug Minty, Edward Ripley, Russ Oechsle, Peter F. Planes II, Paul Richmond, Eric Ryback, Dr. Miranda Marraccini, Dr. Ian Greaves, Mary Jones, Lee Davis, Keith Henley, and Executive Director Rory McEvoy, who presented the banquet lecture.

I can't thank our wonderful volunteers enough. The team was recruited by Convention Co-Chairs Sherry Kitts, Glen Kitts, and Chris Martin and the leadership group included Jae Martin, Rick Robinson, Keith Henley, Geoff Parker, Alex Simpkins, Bob Geier, Bob Pritzker, Bill Slough, Donna Kalinkiewicz, Philip Morris, Rich Newman, Renee Coulson, Evelyn Slough, Donald Jackson, John Cote, Peggy Goodwin, Fran Geier, Russ Youngs, Anthony Manis, Bruce Lewis, Melanie Bernhardt, Bob Burton, Frank Wagner, Ken De Lucca, Jason Champion, and Lee Davis.

The Board of Directors met prior to the Convention and reviewed several key topics, including initiatives in development and member attraction and retention. With headquarters activities running smoothly with Executive Director McEvoy and his leadership team, the focus of the Board has shifted to envisioning the future direction of our organization. A key component of this vision is to more effectively utilize the talents within our National Committees to drive our strategic plans and initiatives. I invite members who might be interested in getting involved in a committee to contact the appropriate committee chair (nawcc.org/about/organization-contacts).

Rhett Lucke

RHETT LUCKE
RLUCKE@NAWCC.ORG

Another successful National Convention is behind us, and we are thankful to all who contributed to making it such an enjoyable event. Our annual members' meeting was well attended, and there was good discussion with helpful feedback. The draft minutes of this meeting, along with Fiscal Year 2023 reports from the Board, Committees, and headquarters, are available online at nawcc.org > About > Association Documents. A QR code to access the reports is provided on page 509.

I am delighted by the progress made over the last fiscal year. Our team is doing a great job of managing NAWCC assets and helping members make the most of them. Our ancient computer servers were successfully upgraded, and we now have a secure, fast system that supports our digital communications and websites. We have updated how we host Chapter websites, giving Chapter officers autonomy over the design and content management.

The Library & Research Center is continually refreshed with new publications, which are posted on nawcc.org/research and in our monthly e-newsletter. Marty Ruddock's extensive collection of research notes and documents is currently being cataloged and conserved. The Hamilton archive is being assessed ahead of a major digitization project.

The Museum is going from strength to strength. Visitor numbers have increased consistently, and work on improving the visitor experience continues. Recent donations include early American tall clocks, tower clocks, and shelf clocks. The Museum Store in Columbia has been overhauled, and the online store is being developed.

With the support of the Museum Collections Committee, we identified duplicate items and voted on the deaccession of lesser examples. All deaccessioned items were sold by public auction, and income was recorded in our financial documents. Revenue from all sales will be used for new acquisitions or the conservation of the collection items.

The new format of the *Bulletin* has been a great reflection of the positive changes at the NAWCC. One of several exciting additions coming to the collection is featured

on the cover of this issue. It is an extraordinary piece of craftsmanship, and it enables testing of the theoretical constructs of John Harrison's approach to making precision clocks. We will continue the late Bob Holmström's research by monitoring this clock and providing a live online feed of its performance.

There is more! NAWCC Life Member Peter Lovell donated over $110,000 of appreciated stocks to help improve the student learning experience at the School of Horology. We are using the donation to improve the classrooms by installing better lighting, seating, tooling, and audio-visual teaching equipment. Looking ahead, we will repurpose around 800 square feet as maker space with workbenches and tools for former students to use for making or repairing their own clocks.

Following Peter's generous donation, long-standing NAWCC member James Dutton stepped up to fund the Education Coordinator salary, which will help us continue expanding the School. Adding this full-time position will enable us to offer more workshops and webinars.

We are extremely thankful for Peter, James, and all who have donated over the past year, and not forgetting our volunteers, without whom we would not be in the good shape that we are. Last but not least, we are grateful to you all. As a member of the NAWCC, you are a part of a wonderful, friendly community that advocates for and helps to preserve the skills, history, artistry, and science of the horological craft.

RORY MCEVOY
RMCEVOY@NAWCC.ORG

2024 NAWCC

Ward Francillon Time Symposium

October 21-24 • Sturbridge, MA

A Horological Tour of New England

Experience New England horology with lectures and exclusive museum tours at the Willard House & Clock Museum, the American Clock & Watch Museum, and Old Sturbridge Village, including the J. Cheney Wells collection of clocks.

Speakers: Mary Jane Dapkus, Andrew Dervan, Damon Di Mauro, Bob Frishman, Greg Gorton, Rich Newman, Sara Schechner, Aaron Stark

James Arthur Lecturer: Dava Sobel will provide the backstory of her acclaimed book *Longitude* and its impact on the public's understanding of horology, specifically marine timekeeping.

Register at education.nawcc.org/symposium

2024 NAWCC Ward Francillon Time Symposium • A Horological Tour of New England
October 21 – 24, 2024 • Sturbridge, Massachusetts

Monday, 6:00 PM – 8:00 PM:	Symposium Meet and Greet Welcome Reception at the Publick House
Tuesday, 8:00 AM – 9:00 PM:	Morning Lectures and Willard House and Clock Museum Tour (Breakfast, Lunch, and Dinner Banquet)
Wednesday, 8:00 AM – 5:00 PM:	Morning Lectures and J. Cheney Wells Collection Tour at Old Sturbridge Village Breakfast (Lunch and Dinner on Your Own)
Thursday, 9:00 AM –3:30 PM:	American Clock and Watch Museum Tour (Lunch)

Extend your visit *after the Time Symposium for a Friday, October 25 preview of Schmitt Horan & Co.'s November 2 auction in Candia, NH (www.schmitt-horan.com/). Then attend New England Chapter 8's Saturday, October 26 meeting in Auburn, MA, with programs by Russ Oechsle, Tom Pettee, and more (https://nawcc8.org/).*

Visit our webpage for Online Registration and specific program and lodging details: https://education.nawcc.org/symposium
All museum admissions included in pricing. **Questions:** Contact Howard Cohen (howard-cohen@comcast.net) or Cathy Gorton (cathy.gorton@gmail.com).

Mail Registration Form to: NAWCC, Attn: 2024 Time Symposium Registration, 514 Poplar Street, Columbia, PA 17512
Or email form to: Tina Manley (tmanley@nawcc.org) **Subject:** 2024 Time Symposium Registration

Name(s):_____

Address: _____

Email: _____ Phone: _____

Food Allergies _____ Circle as Required: Vegan Vegetarian Gluten Free

Registration Fees

All-Inclusive WITH bus transportation to excursions (50 seats available, book asap to hold a seat): _____ x $475 = _____
All-Inclusive WITHOUT bus transportation to excursions (drive separately or carpool): _____ x $400 = _____

-- OR –

Design your own program (à la carte pricing to suit your preferences and schedule)

CHOOSE Tuesday: Lectures only. Breakfast included (8:00 AM – Noon) _____ x $75 = _____
ONLY ONE Tuesday: Lectures + Willard House tour (bus extra). Breakfast, lunch, and Museum admission included. (Select Banquet below if wanted) _____ x $125 = _____
CHOOSE Wednesday: Lectures only. Breakfast included (8:00 AM – Noon) _____ x $75 = _____
ONLY ONE Wednesday: Lectures & J. Cheney Wells Collection Tour at Old Sturbridge Village. Breakfast and Museum admission included. _____ x $100 = _____
Thursday: American Clock and Watch Museum. Admission and lunch included (no bus) _____ x $55 = _____

À La Carte Meal Options

Monday: Welcome Reception at the Publick House (heavy hors d'oeuvre, cash bar) _____ x $45 = _____
Tuesday: Publick House Lunch Only: Colonel's Deli Lunch Buffet _____ x $35 = _____
Tuesday: Dinner Banquet at the Publick House (dinner buffet, cash bar) _____ x $75 = _____

Bus tickets – 50 seats available. Book asap to hold a seat if you prefer NOT to drive on your own

Tuesday: Willard House Round Trip Bus Ticket . _____ x $35 = _____
Thursday: American Clock & Watch Museum Round Trip Bus Ticket _____ x $40 = _____

Donation to Support NAWCC's Time Symposium – *Thank You!* ($25 suggested) _____

TOTAL: _____

Enclose Check Payable to NAWCC, Memo: 2024 Time Symposium
Credit Card Payment: Name on Card: _____ **Type** _____
Card No: _____ **Exp Date (MM/YY):** _____ **CSV:** _____

The NAWCC, its officers and members, and the Time Symposium are not responsible for any loss, injury, or tort during this event.

Testing a Replica of John Harrison's Late Regulator

By Bob Holmström, NAWCC Fellow (OR)

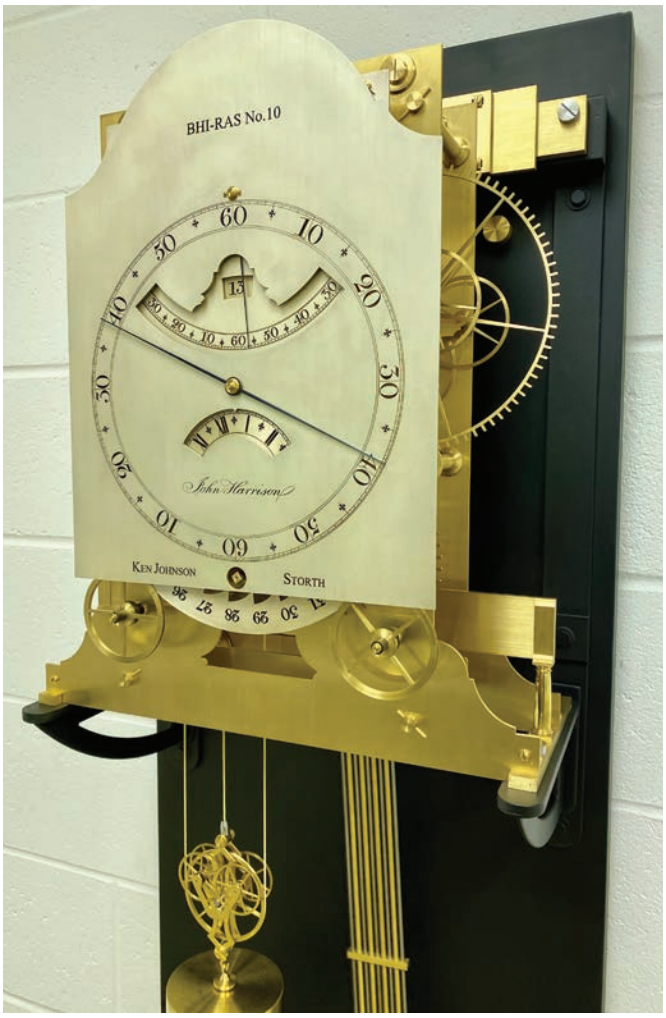
INTRODUCTION

By Don Saff

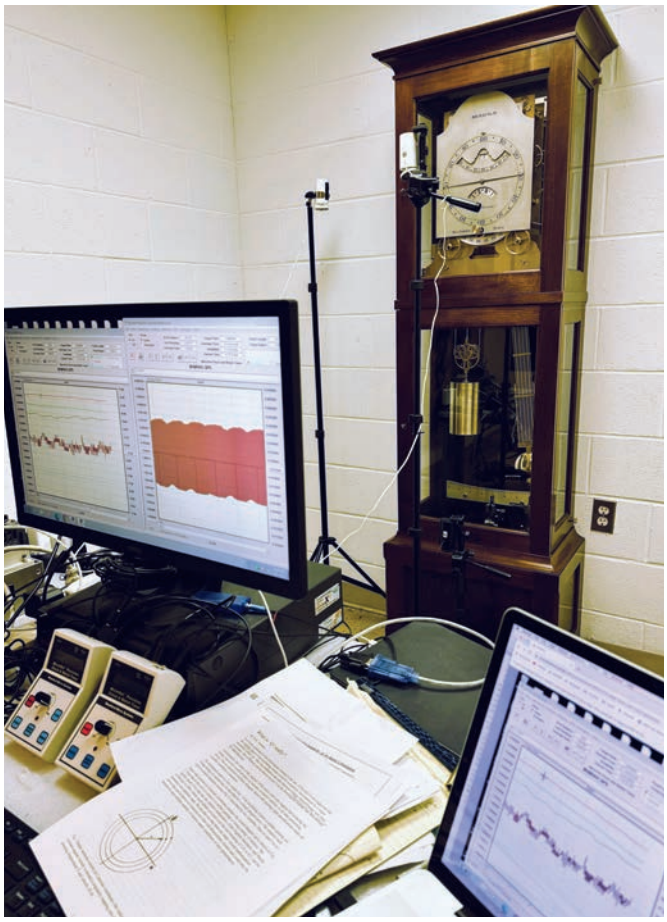
During testing at Charles Frodsham and Co.'s facility (Figure 1) in the summer of 2011, it became apparent that Martin Burgess's Clock B, which was based on John Harrison's mid-18th-century design, could possibly perform, as Harrison predicted, by remaining at no more than 1 second deviation after 100 days (1 in 100 as Harrison stated).[1] Trials continued at the Royal Observatory Greenwich beginning in April 2012, under the initial direction of Jonathan Betts and continued by Rory McEvoy. With rigorous trial standards in place, the clock demonstrated that it was capable of remaining at 5/8 of a second deviation from the UTC starting point over 100 days earlier.[2] However, Clock B is made from relatively modern materials and technology—critically, electrical auto-wind, invar pendulum, and Ni-Span-C suspension spring—and so there were questions as to whether the clock's good performance was due to the modern materials, rather than the application of understood theory in its construction advanced by Harrison (Figure 2). The next logical step was to test a replica of Harrison's clock, which resides at the Observatory, using Harrison's actual design and materials. This article will introduce a faithful copy of John Harrison's regulator, known as the BHI/RAS (British Horological Institute/Royal Astronomical Society) No. 10 regulator or Late Regulator (Figure 3[3]), and the close analysis of its function and performance by the late Bob Holmström.

▲ **Figure 1.** Testing of Clock B.

◀ **Figure 2.** Clock B's installation at the Royal Observatory Greenwich.



◀ **Figure 3.** BHI/RAS No. 10.



▲ **Figure 4.** Testing BHI/RAS No. 10 in Don Saff's workshop in Oxford, MD.

It was fortuitous that I was at the Observatory when Jonathan, with the permission of the RAS, began the process of disassembling Harrison's Late Regulator to take precise measurements for a group of BHI members who were granted permission to produce several replicas. Though I was present for only a few hours, I was stunned when he removed the caged roller bearing from the plate and pointed out that after more than 250 years there was no obviously discernable wear. At that moment, I aspired to acquire a BHI/RAS example to pursue the same trial path as Clock B, which was necessary for confirmation of Harrison's prediction, though in this case using his specific mid-18th-century clock design and material.

I was precluded from acquiring a replica after many inquiries. Of significant sadness, Ken Johnson, who had produced BHI/RAS No. 10, passed shortly after completing his example (the only complete BHI/RAS replica at that time). His clock, through the efforts of Jonny Flower, came into my possession. As can be observed, Ken's workmanship is faithful and of the highest skill level.

While many parts were produced as a group effort for the BHI/RAS No. 10, it remained to each to find his respective path. The processes and progress were reported regularly by Colin Fergusson in *The Horological Journal*. At the time I acquired No. 10, I had been working with Bob Holmström, Malcolm Bell, and Mervyn Hobden, researching the accuracy potential of the verge and foliot clock. Bob had visited my collection with the Antiquarian Horological Society group and began supplying me with articles relating to a clock I was building in 2006 utilizing a disk pendulum impulsed by a piezo actuator imparting parametric resonance to the disk. As I asked Bob for assistance with my project, the response came as informed comment supported by a continuous supply of reference material. That continued throughout the verge

THE CLOCK STOPS!

MY CLOCK - MOST THING SORTED OUT, BUT IT STOPS FROM TIME TO TIME.

TWO OBVIOUS REASONS FOR STOPPING! -

1. ESCAPEMENT 'RUNS OUT OF STEAM' AND STOPS ESCAPING.
   REASONS! - NOT ENOUGH IMPULSE - SO INCREASE REM SPRINGS, OR NOT QUITE IN BEAT - SO ADJUST.
2. REMONTOIRE SPRINGS FAIL TO REWIND.

MY MAIN PROBLEM FOR LONG TIME WAS TO DERMINE IF 1 OR 2 IS BLAME FOR STOPPAGE.

CONSIDER THE CRUCIFIX + THE REM PINS.

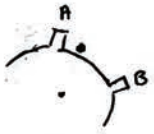
FROM FRONT; REMEMBER BOTH ARE ROTATING CLOCKWISE, CRUCIFIX 'CONTINUALLY' WITH ESCAPE WHEEL, AND REM PINS EVERY 30 SECS AS SPRINGS REWIND.

SHOULD BE RELATIVE MOVEMENT AS SHOWN. - 1 IS WOUND UP, 2 WOUND DOWN SPRINGS.
3 WOUND UP AGAIN.

1:

THEN

2:



THEN WIND-UP

3:

SO, NORMALLY, REM PIN WILL BE SEEN ANYWHERE BETWEEN 1+2 (OR 2+3 - 3 IS SAME AS 1).

THAT IS :-

REM PIN IN ARROWED REGION.

IF MY CLOCK STOPS + PINS AS SHOWN, FAULT IS WITH ESCAPEMENT.

HOWEVER, IF STOPS WITH PIN AGAINST A, HAS NOT REWOUND!

THAT IS! -

EXPLANATION IN GOOD REWIND, DENTOR RELEASES, REM + FLY ROTATE, FORK ON DETENT SWINGS AWAY FROM ESCAPE PIN BECAUSE OF REM CAM, THEN FORK FALLS BACK, CLEARING ESCAPE PIN FROM WHICH WHICH IT WAS PUSHED, AND INTO POSITION WAITING FOR NEXT ESCAPE PIN TO ENGAGE.

IF FALL BACK IS DELAYED, (KIT +, I THINK, CF PROBLEM) FORK WILL MISS THAT NEXT ESCAPE PIN POSITION + BE WAITING FOR THE THIRD ESCAPE PIN.

MISSING THE SECOND PIN MEANS A MISSED REWIND + CRUCIFORM CONTINUES TO ROTATE UNTIL IT HITS THE UNMOVED REM PIN. CLOCK STOPS WITH PIN AGAINST CRUCIFORM.

I HAVE ACTUALLY WITNESSED ONE OF THESE DELAYS (SEEN AS FLY STALLING FOR A FEW SECONDS OR VERY SLOW ROTATION) + RESULTING IN STOPPING THE SCAPE WHEEL ROTATION. A QUICK FLICK OF THE DETENT ARM + CLOCK CONTINUED. HAVE ALSO SIMULATED THIS BY HOLDING + THEN RELEASING FLY.

APRIL 2020

Figure 5. Ken's notes on the remontoire phase.

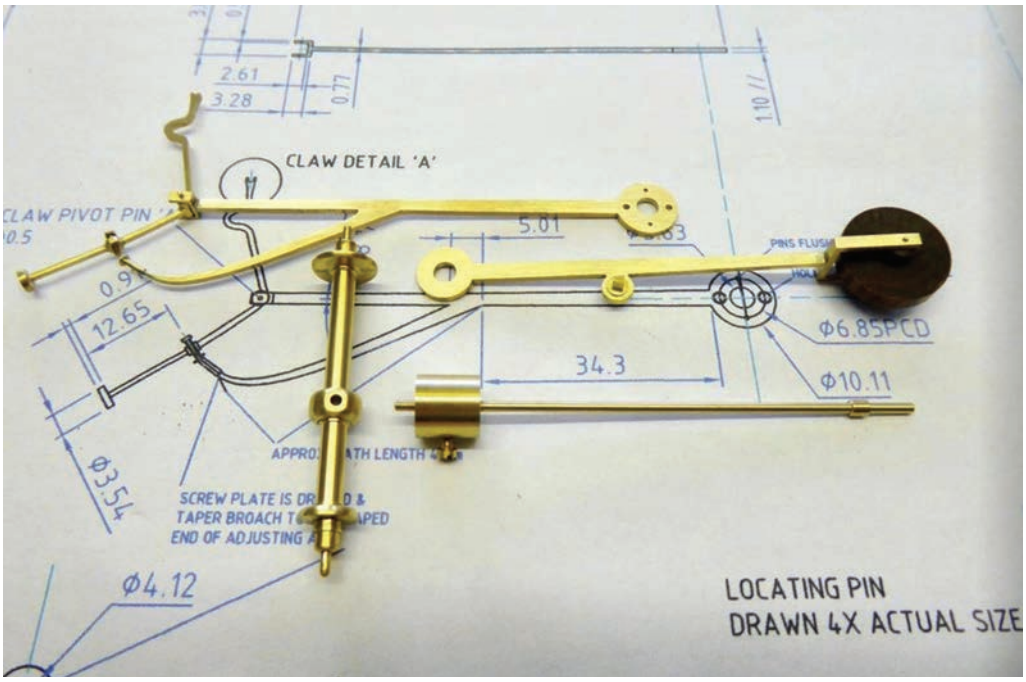


Figure 6. Remontoire assembly.
IMAGE FROM KEN JOHNSON'S BOOKLET *BHI—THE HARRISON REPLICA PROJECT.*

▼ **Figure 7.** Rory McEvoy assembling BHI/RAS No. 10.

and foliot studies and eventually to our work on No. 10 (Figure 4).

Over the course of 2 ½ years, I spoke with or emailed Bob a few times a week. He was always curious, analytical, and followed scientific methodology, coming at each issue with very few preconceptions. Each of his observations was informed by the copious articles in his library that he would share and would clarify by his generous and patient conversation. All of us who knew and worked with him had that experience. He was the ultimate resource indeed.

When No. 10 arrived in Maryland, it suffered from several problems that slowly became apparent. With Colin Fergusson's assistance via Zoom and additional notes that Ken Johnson produced (Figure 5) and sent to me by Colin Walsh, phase issues were observed and understood but were not to be corrected until Rory McEvoy repositioned and ended the slippage of the remontoire detent (Figure 6).

Further, the clock continued to stop on an unpredictable schedule. This was due to the resin leached by the lignum vitae rollers binding the roller to the pin arbors of the pinions. The rather arduous removal, broaching, and in some cases, remaking of the diminutive roller was performed by Rory (Figures 7 and 8).

The clock has not stopped of its own accord since that modification in April 2022. Producing a proper case, ensuring that ambient light was not corrupting the optical sensor data, ensuring that the optical sensors mounts were robust, and improving the fine adjustment rating capability were just some of the ongoing improvements (Figure 9).

Over a few years, I supplied Bob with the raw data that he plotted and shared with Mervyn Hobden, Rory, and others. After analysis, we would agree on the next path for study and the acquisition of the appropriate software

and metrology devices. We worked on the data up until a few weeks before Bob's passing, and though he was clearly suffering, each conversation about Harrison, No. 10, and the way forward for my next assignment ended with him saying "fun, fun." He was indefatigable, and he loved the challenge and scientific rigor, his sine qua non, as he evaluated the gathered empirical data. His stated purpose for publishing the article (planned for the *Horological Science Newsletter*) was simply a call for input and was not intended to offer finality.

Having observed, corrected, and recorded the clock daily over three years, I would posit that Harrison could not have been satisfied using his gridiron pendulum, as I think it is the Achilles heel of the system. Perhaps Harrison realized the problem and did not resolve the issue due to his age, or lack of support, or lack of a clear path forward, or for some other reason. Modifications to the RAS by Cottingham, Gould, and others compound the difficulty in speculating what was intended and the state of the clock at the time of Harrison's demise.

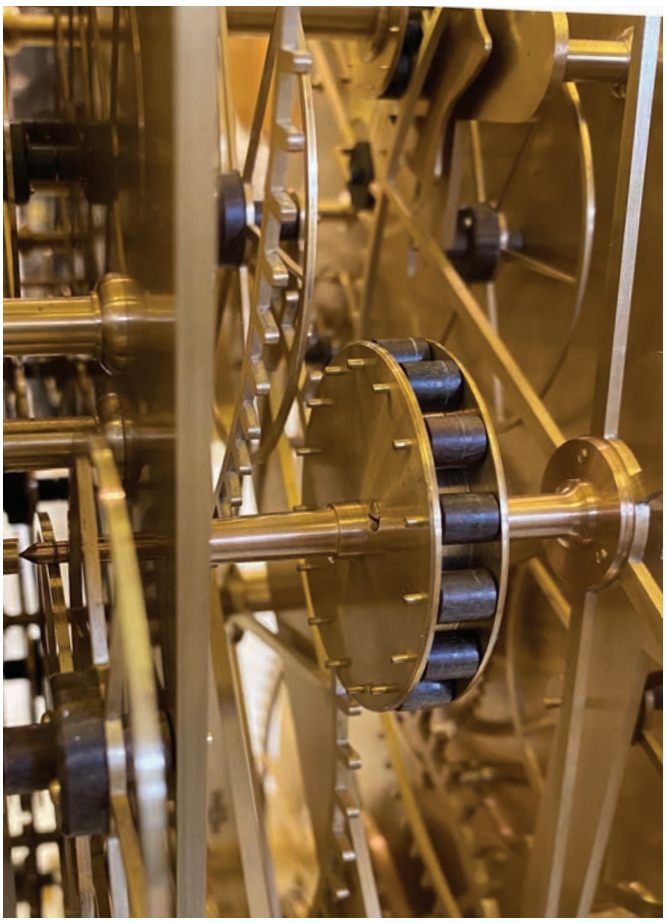


Figure 8. Lignum roller pinion.

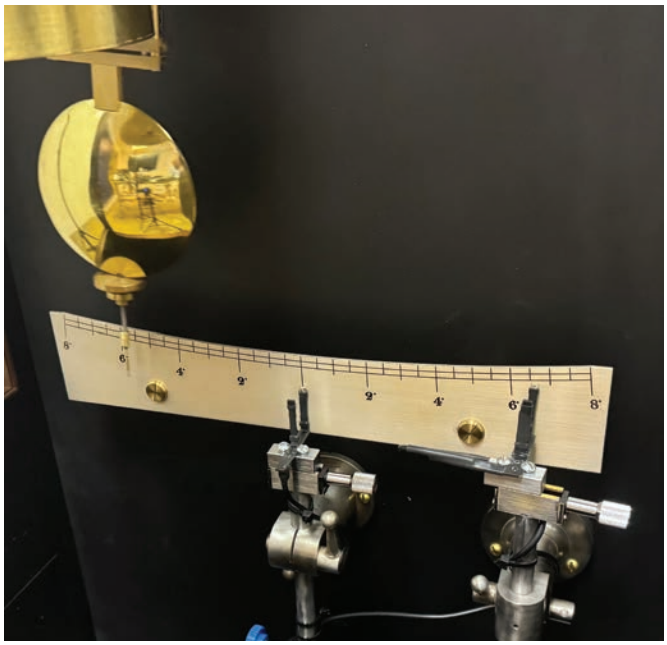
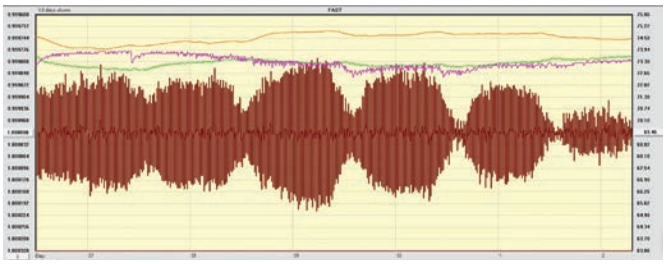


Figure 9. Optical sensors and mounts.

Bob had particular interest in searching the single beat data that I supplied to him with 500k MicroSet samples using a Rubidium standard, or GPS, or the TCXO oscillator. It was of particular concern to Bob that single beat data was seldom analyzed and was critical to any efficacious study (Figure 10). At least 50 tests were produced, each demonstrating what appeared to be a shift in bottom dead center (BDC) or tilt.

Bob felt strongly that we were seeing shift due to tidal vicissitude. I remained unsure, as the change in the tidal phase was present but not always predictable as it should have been. Many conversations regarded the related issue of "tilt" and the varied torque at the pallets on the single pivot grasshopper escapement that were advanced by Mervyn (a comprehensive study by Mervyn will be published in the next issue of the *Bulletin*). Additionally, Bob was supplied with more than 30 long-term (from a few days to over 85) 240 beat samples.

After the current hiatus of testing No. 10, we should return to the study. The "1 in 100," or Clock B accuracy, is likely unobtainable with the RAS as currently configured or with the BHI/RAS replica, if the gridiron is the pendulum of choice. Its use in the replica may possibly be based solely on its use in the early Harrison regulators and/or the King portrait (Figure 11) but may not have been Harrison's ultimate preference.



▲ **Figure 10.** The 500k single beat MicroSet data graph. Data recorded by Don Saff.

► **Figure 11.** Portrait of John Harrison engraved from a painting by Thomas King (1767). WIKIMEDIA COMMONS.

INITIAL TESTING RESULTS ON BHI/RAS NO. 10

By Bob Holmström

Over many issues, *The Horological Journal* described the beginnings of the creation of several copies of John Harrison's Late Regulator. A small number have now been completed. Don Saff has acquired one of them, and the following is a discussion of some of the early data collection and experiments.

It appears that there is no evidence that John Harrison ever completed his "late regulator" to his satisfaction. The clock was passed through relatives and eventually ended up with the Royal Astronomical Society (RAS). There are records of its discovery, restoration, modification, etc. The clock is currently installed at Greenwich. It is probably not in a condition to give useful test results. The BHI initiated a project to build several copies, and they were supported by the RAS and detailed measurements were made at Greenwich. Don's clock (No. 10) was built by Ken Johnson. Two other clocks are at Upton Hall, but they are not running currently.

Figure 12. A MicroSet graph showing 86 days of running and environmental conditions from an early attempt at a 100-day set of data. The right vertical column shows the pendulum period in seconds. The left column shows barometric pressure in inches. Data recorded by Don Saff.

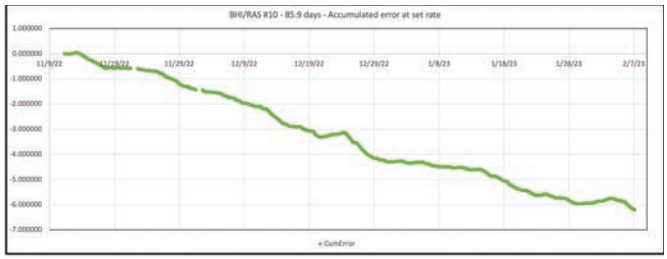


Figure 13. Showing the accumulated error from the 86-day run. The vertical axis shows clock error in seconds.

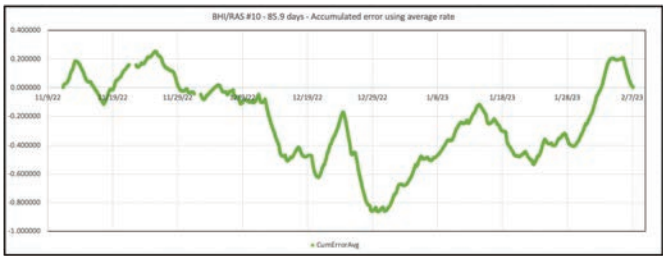


Figure 14. Showing the clock performance with corrected average rate. The vertical axis shows clock error in seconds.

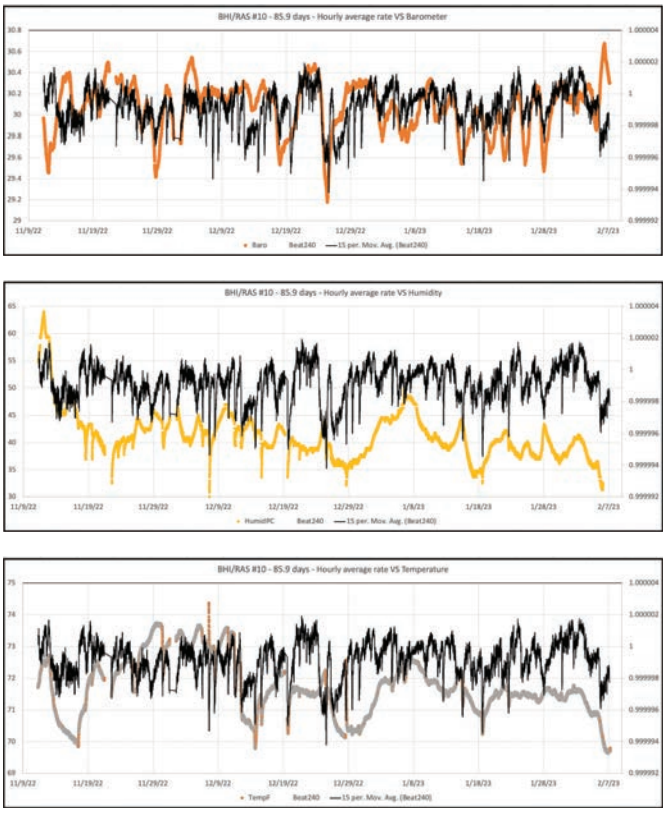


Figure 15. Comparison of rate versus barometric pressure, humidity, and temperature for the same 86-day test.

Figure 12 shows the average rate for this first test attempt was 0.9999997: 0.3 microseconds from the goal of 1 second per beat. Time and the accumulated rate error resulted in an accumulated error of approximately 6 seconds at the point the clock stopped due to an unknown cause (Figure 13). It was successfully restarted.

If the goal is to make no rate correction as in the test of Clock B, the rate needs to be set much closer to the correct rate. BHI/RAS No. 10, as constructed, has a very coarse adjustment of rate; it needs to be improved.

The results of correcting the average rate are shown in Figure 14.

Preliminary analysis of the environmental variables' effect on No. 10's performance is shown in Figure 15. Note that the MicroSet was set to collect the average of 240 beats (one full turn of the remontoir wheel assembly). This was necessary because the MicroSet software was configured to collect only 90,000 data points, which is only a bit more than a day for single beats. The same data collection method was used for Clock B.

The goal is to try to determine what adjustments might be required to improve the performance. At this point, no strong correlation between these variables and performance with this dataset seems to exist to the degree of knowing what to change. Additional analysis of air density, air viscosity, and amplitude did not change that conclusion. There are many things that might be adjusted in a Harrison clock, and they interact with each other in ways that are unconventional in precision mechanism design. This clock is remarkable, even at this early stage in its testing. It is so good that better measurement tools and software would be helpful. Much more testing will be required to confirm this performance.

The rest of this initial report looks at results from using other methods to measure and analyze why this Harrison clock performs as well as it does.

SINGLE-BEAT ANALYSIS

Normally, single-beat data is easy to collect and doesn't yield much in the way of surprises. This Harrison clock has provided many. The first experiment was to collect ~250,000 single beats using modified MicroSet software (thanks, Bryan Mumford [Mumford Micro Systems]). Figure 16 shows almost three days of data.

It was initially thought that the two different beats were most likely due to the sensor not being in the exact center of the swing, or the grasshopper escapement. Subsequent experiments and discussion suggest that separation of beat into two groups appears to be part of the Harrison compensation method. Figure 17 shows temperature during the experiment plotted to compare with the lower beat data. If I split the data into upper and lower beat groups, the temperature plot (Figure 18) is inverted and conforms generally with the shape of the

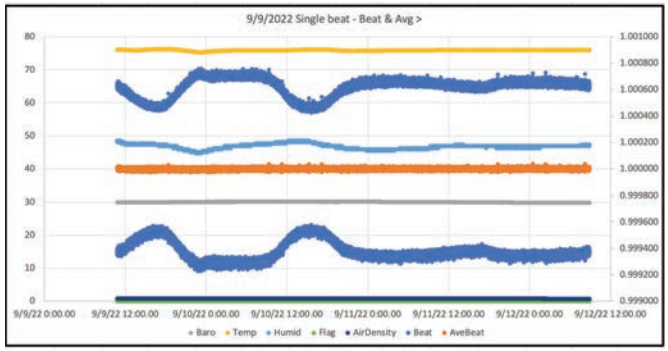


Figure 16. Comparing single beat data showing the different beat for each direction of the pendulum swing.

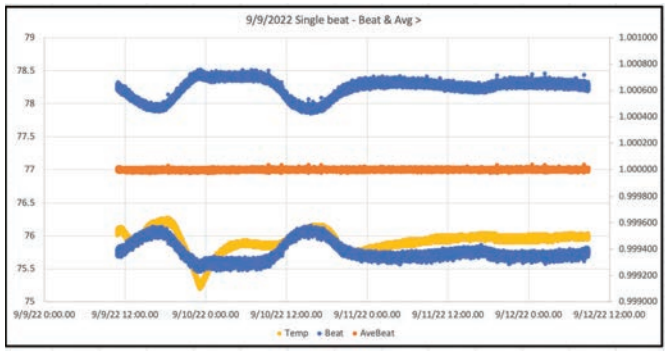


Figure 17. Showing apparent correlation between temperature and beat.

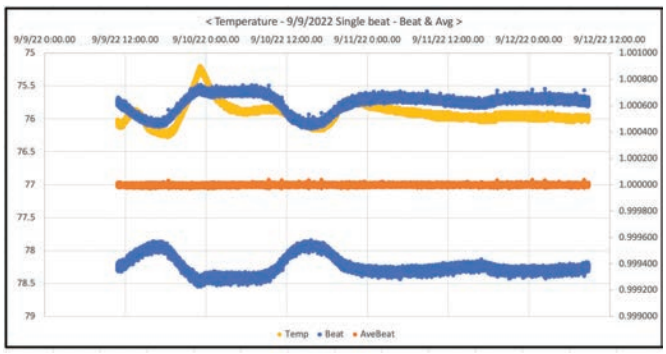


Figure 18. With temperature inverted to show similarity of the upper beat plot

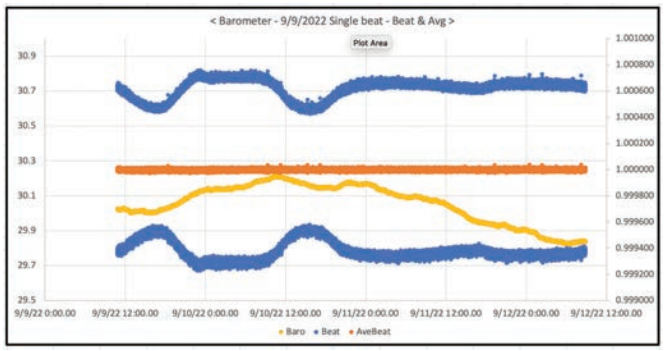


Figure 19. Showing change in barometric pressure and beat changes.

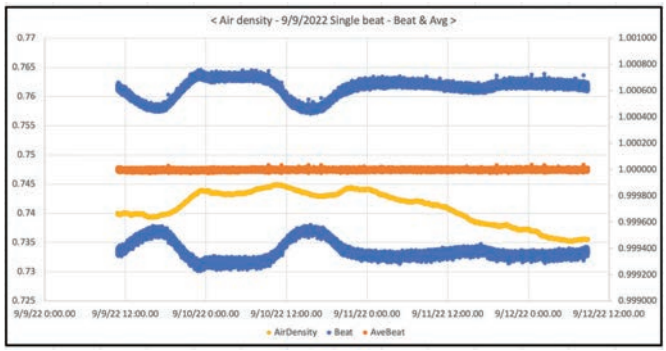


Figure 20. Showing beat change relative to changes in air density.

upper beat data. See the additional graph below with the temperature scale inverted for an example. I have no explanation currently as to why this occurs.

Humidity showed a similar correlation, but barometer and air density were less convincing (Figures 19 and 20).

I commented on the *Horological Science Newsletter* (HSN) List[4] that this data was "noisy." The high/low beats have ~+/-100 microseconds of "noise" and the average has ~+/-50 microseconds. The response was "how could the clock be accurate if data was so noisy?"—quoting Woodward.[5] I responded that perhaps this may be related to the way Harrison environmental compensation works (without any evidence at that point).

A repeat of this experiment with a new high-speed MicroSet sensor on a much-improved mounting gave more unusual results (Figures 21 and 22). Is this the same behavior?

If you look at the difference between adjacent beats, you get the graph in Figure 23. A moving average shows what appears to be the 240-second remontoir cycle.

At some point during these experiments, Merv Hobden related a story. He was observing the motion of the gridiron pendulum of Harrison's regulator at the Clockmakers' Museum in London with Colonel Quill.[6] Quill said something like "any pendulum that moves like that cannot possibilly be accurate." Merv calls what they were observing "tilt" and relates it to the motion of a spring/cheeks-supported pendulum with a mass distribution like a gridiron pendulum. He said that Harrison remarked that his pendulum "does not swing in a straight line" and that this could "be easily observed."

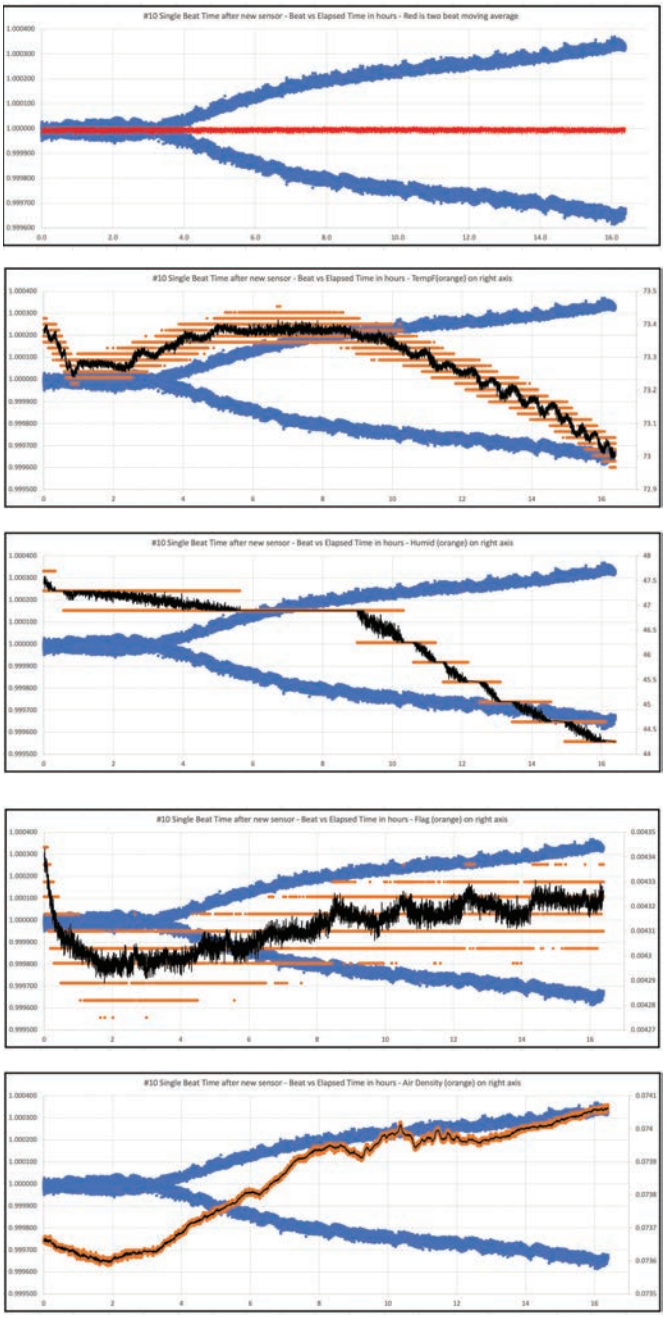


Figure 21. The red data is the average of two beats. It remains ~ constant at the target rate. High and low beats diverge. Did anything in the environment change to drive this result?

So at this point, my research moved to evaluate the position of the pendulum as a function of time.

The first experiments involved using an inertial sensor attached to the pendulum. I used a PocketLab Voyager sensor.[7] There are less expensive inertial sensors, but this one uses very high-quality components from Invensense, and includes temperature, pressure, and humidity sensors as well. The company website is designed for the education community and is very useful (www.thepocketlab.com).

The sensor was attached to the crossbar on the gridiron pendulum at two locations and data were collected. The first was near the bottom of the pendulum (Figure 24).

Note the axis diagram on the face of the sensor: linear motion is in the direction of the axis arrow; rotary motion is about the axis.

So, in Figure 24 showing angular velocity:

> Blue (X) is rotation to/from the clock backboard.
> Orange (Y) is rotation about the rod axis (twist).
> Gray (Z) is rotation speed in the XY plane about the ~center of the sensor.

Note that the "twist oscillation" of the orange data occurs only when the pendulum is primarily moving from left to right.

With the PocketLab at the middle of the pendulum, the twist of the rod has less direction dependence (Figure 25).

The next experiment was to take a video of the running clock with marks on the pendulum. Tracker software was used to determine the position of the pendulum and the pendulum marks with respect to time.[8]

Figure 26A shows the five red dots placed on the face of the clock and the pendulum, in order from the top: (1) spring pinch point, (2) the crutch at centerline, (3) top visible crossbar on pendulum, (4) center crossbar, and (5) near the bottom crossbar.

Figure 26B shows the coordinate system placed using Tracker: centerline (blue) and origin (violet) located at the approximate pinch point for the pendulum spring.

Figure 26C shows vectors marking the centerline of the pendulum at its two extremes. Note that the vectors intersect at a point considerably below the pinch point due to the spring and circular cheeks. The intersection point moves as the pendulum swings. I think this is what Hobden and Quill called tilt.

Tracker apparently gets its name from its ability to step through a video, a frame at a time, and extract the

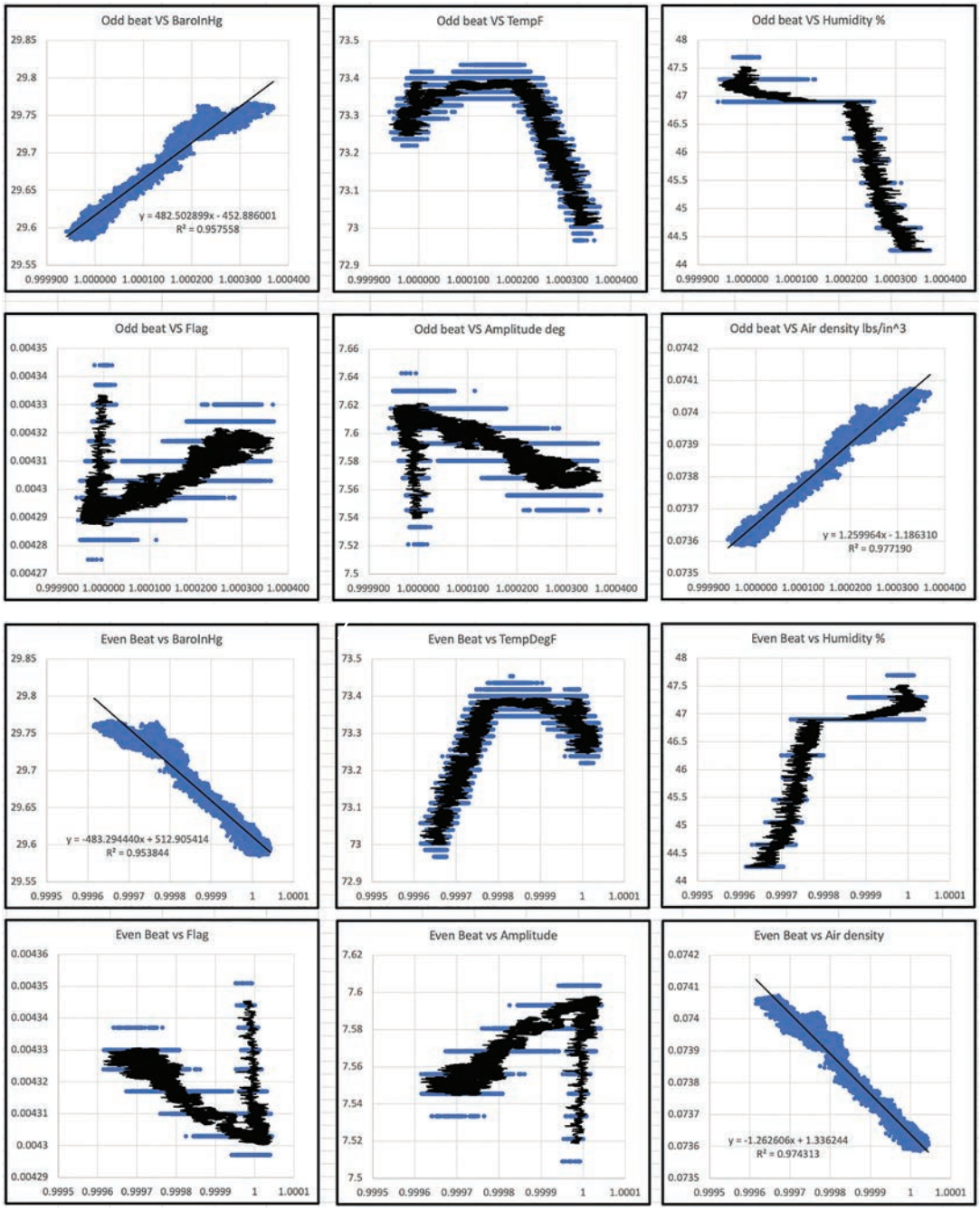


Figure 22. Correlation plots, looking at the odd and even beats separately.

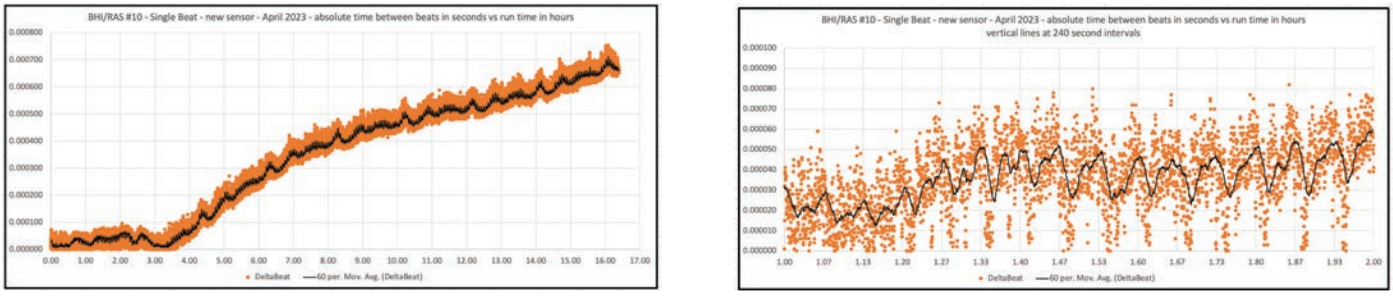


Figure 23. Difference between adjacent beats.

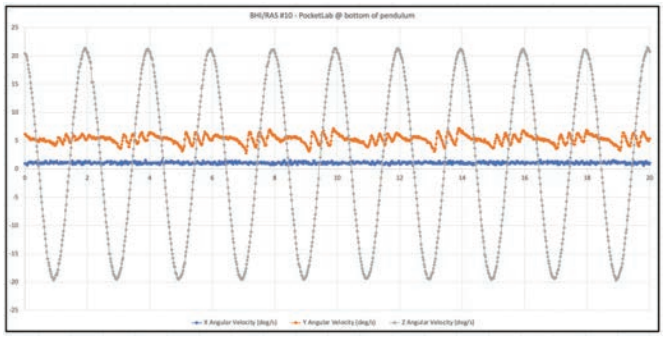


Figure 24. Data for using an inertial sensor attached to the bottom of the pendulum.

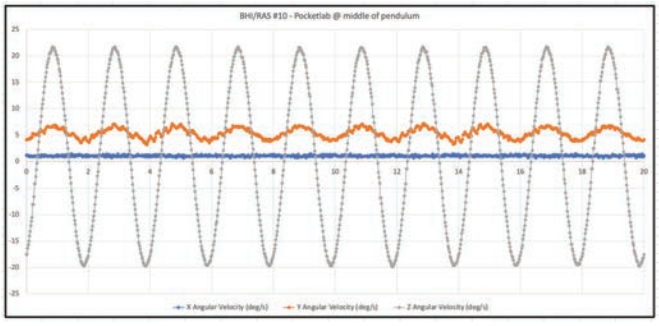


Figure 25. Data for using an inertial sensor attached to the middle of the pendulum.

coordinates of a selected object. The three red dots placed on the pendulum turned out not to be very good for Tracker's auto tracking, and I had to step through the video a frame at a time and manually place the marks. In the future, the target needs to be high contrast on a white background. In Figure 27, you can see that I used the tip of the pendulum as a target. I also referenced the lower line on the beat scale. The image also shows that the pendulum velocity, especially near the center of swing, makes locating the target a bit of a guess. Tracker creates the graphs and data display as the data points are collected. Note that X and Y dimensions are meters. I believe the unequal amplitudes in the Y data are due to the beat scale not being perfectly horizontal.

The important thing to note is that the numbered Tracker points 67–78 in Figure 27 are not equally spaced. At this point, I think the reason is related ether to the pendulum rod twist noticed in the PocketLab results or to tilt.

I then collected tracker data as best I could for 13 seconds of the video using 2 of the red dot targets (Figure 28). Using a bit of trigonometry, I used the coordinates of the two targets at each frame in the video to calculate the coordinates of the point where the line through the two points crosses the vertical axis. The orange dots on the graph in Figure 29 are at the time the pendulum crosses the axis and the pendulum spring is not in contact with the cheeks. The scatter in the data plotted on Figure 29 is made worse by the poor targets and manual tracker point locations.

These experiments and data seem to confirm that a Harrison pendulum moves in a complicated way that appears to result in the period of each individual swing changing in opposite directions because of changes in the environment. The average of the "full period" (total of swings in both directions) stays quite constant, which

26A 26B 26C

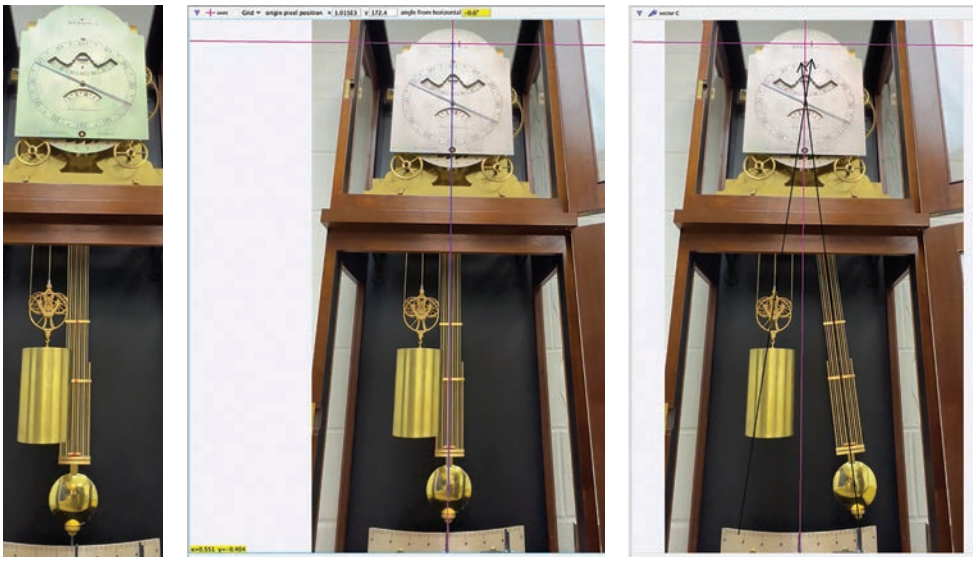


Figure 26. Tracking the motion of the pendulum. **A.** Red dots indicate the spring pinch point, crutch at centerline, top visible crossbar on pendulum, center crossbar, and near the bottom crossbar. **B.** Coordinate system placed using Tracker: centerline (blue) and origin (violet) located at the approximate pinch point for the pendulum spring. **C.** Vectors marking the centerline of the pendulum at its two extremes.

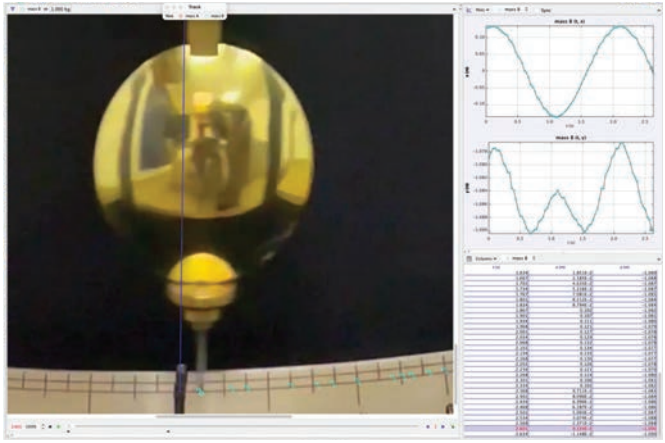


Figure 27. Showing the uneven spacing of the tracker points – marked in cyan

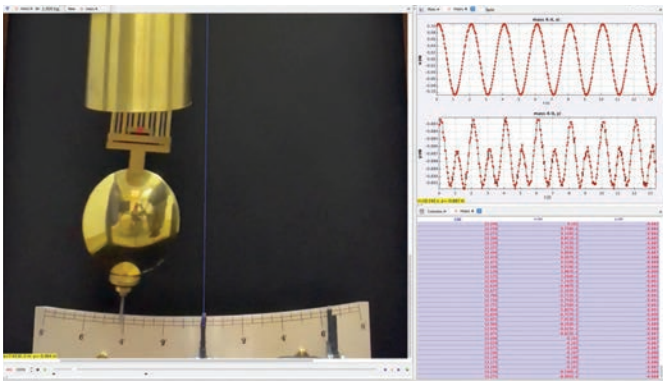


Figure 28. A 13-second run tracking the positions of the red dots.

leads to good timekeeping. More experiments (higher accuracy) need to be made to confirm these conclusions.

What is not clear is how the changes in environment change a Harrison clock to achieve these results. Components change dimensions due to temperature. Spring constants change due to temperature. Air density and viscosity change due to temperature, barometric pressure, humidity, etc. In an "ordinary clock," each environmental response variable is usually treated one at a time to achieve a constant period goal. What "knob" to turn is reasonably obvious. *For a Harrison clock, what do you change to adjust the center of the pendulum swing?* What additional experiments might be done to learn more about why changing the center of oscillation of a pendulum is a proper response to environmental change (Figure 30)?

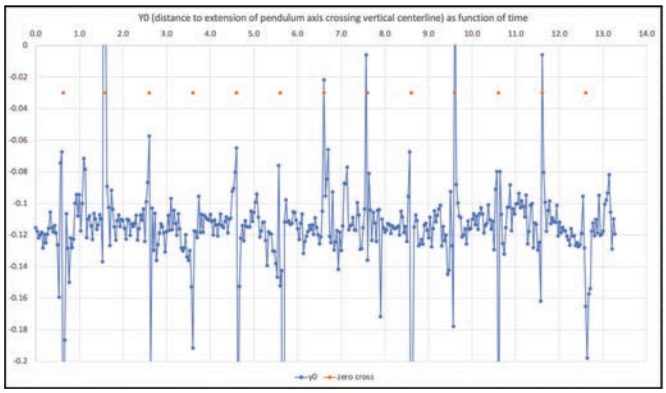


Figure 29. Pendulum motion as derived from tracking the positions of the red dots.

Figure 30. This QR code is linked to a YouTube video showing Don's No. 10 clock running.

Notes and References

1. John Harrison, *A Description Concerning Such Mechanism As Will Afford a Nice, or True Mensuration of Time . . . Also an Account of the Discovery of the Scale of Musick* (London: Printed for the Author, 1775).
2. Rory McEvoy and Jonathan Betts, eds., *Harrison Decoded: Towards a Perfect Pendulum Clock* (Oxford, UK: Oxford University Press, 2020); see also Ian Skellern, "Burgess Clock B, the World's Most Precise Pendulum Clock, Is Made to a 250-Year-Old Design by John Harrison, Longitude Prize Winner and Inventor of the Marine Chronometer," Quill & Pad, https://shorturl.at/Pqusg.
3. All photos of the No. 10 clock were taken by Don Saff. All graphs were produced by Bob Holmström unless otherwise noted.
4. *Horological Science Newsletter* forum, https://groups.io/g/Horological-Science-Newsletter/message/63.
5. For a discussion of data that is "noisy," see Philip Woodward, *Woodward on Time: A Compilation of Philip Woodward's Horological Writings* (Van Nuys, CA: Bill Taylor, 2006).
6. Humphrey Quill, *John Harrison: The Man Who Found Longitude* (Baker, 1966).
7. "Pendulum and Sensor Experiments? A Work in Progress," *Horological Science Newsletter,* 2018-4, page 19; www.thepocketlab.com/store/pocketlab-voyager-2.
8. Tracker Video Analysis and Modeling Tool, https://physlets.org/tracker/.

About the Authors

Bob Holmström joined the NAWCC in 1997 and was keenly interested in the science of precision timekeeping. He served as the editor and publisher of Chapter 161's *Horological Science Newsletter* from 1999 until his passing in 2024.

Don Saff has been an NAWCC member for 58 years. He is the 2024 recipient of the Kenneth D. Roberts – Snowden Taylor award for excellence in horological research.

The History of Swiss "Fleche-Ébauche" Pocket Watches

By Luigi Petrucci (ITA) and Alan Myers (IRE)

INTRODUCTION

The term *fleche-ébauche* was coined in a recent article by Alan Myers to define a pocket watch movement characterized by an arrow-shaped balance cock.[1] This form of balance cock can be observed on movements with lever escapements and those with pivoted detent escapements. Although all these movements might seem to be part of a common caliber family because of the identical appearance of the balance cock, this is not the case: the lever movements appear to be a development of a caliber by Fayette Strafford-Giles, one of the owners of the United States Watch Co., later Marion Watch Co. They were manufactured by Albin Bourquin first and then Julien Gallet & Co., in the 1880s at the latest. The movements for pivoted detent ébauches were made first by Clémence Frères between 1888 and 1894, then by F. Jaquet & Girard, later by Girard from 1894 to about 1920, and finally by Ed. Glauser from about 1896 to 1904. They worked on a *finissage*[2] from Charles Hahn & Cie.

It will be helpful in what follows to refer to the earlier article that describes the various patterns of fleche-ébauche movements. For simplicity, the earlier article is referred to as "previous article," and when figure numbers apply to the previous article, they are ***bold italicized.***

THE LEVER MOVEMENTS

As shown in the previous article (***Figures 1A, 3A, 3D***), the signature "*Albin Bourquin, Chaux-de-Fonds*" is often found on fleche-ébauche movements with lever escapements.

Albin Bourquin was born in 1808 in La Sagne.[3] He was the son of Olivier Bourquin and Sophie Pétremann and was married to Zéline Perret-Gentil.[4] It is not known if he was also a relative of Anna Bourquin, wife of Julien Gallet, the founder of the homonymous *maison*. From at least 1841 until 1863, Bourquin was active in La Chaux-de-Fonds as *horloger* (watchmaker),[5] *remonteur* (finisher),[6] and *frappeur au balancier* (maker of dials, medals, and the like using a screw press).[7] He first worked in Grand Rue 48[8] and then in Rue de Pré 100.[9] In 1863, he sold the screw press and transferred to the *maison* Julien Gallet at rue Léopold Robert 21.[10] By 1870, Albin Bourquin had set up his own *comptoir* (a workshop for assembling and finishing watches), and he was able to fulfil the contract for the production of the 10-size grades Chas. G. Knapp and R. F. Pratt for the United States Watch Co. in Marion.[11] According to the pocket watch database,[12] 410 R. F. Pratt and 525 Chas. G. Knapp were produced in 1870. The caliber of these grades was designed by Fayette Strafford-Giles, patented in the US on March 8, 1870[13] (Figure 1B) and assigned to Giles, Wales & Co.,

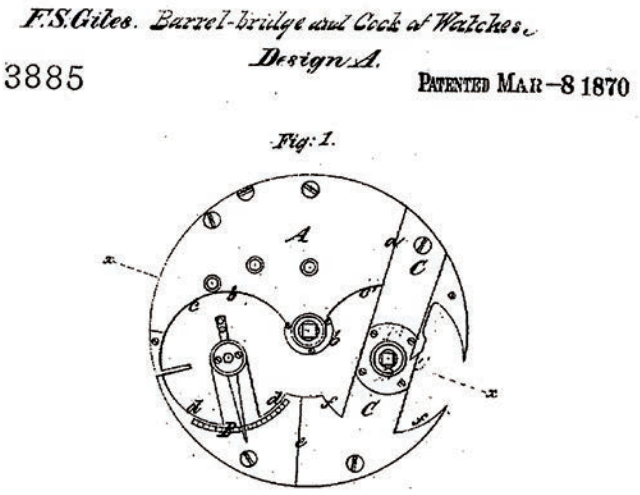

F.S.Giles. Barrel-bridge and Cock of Watches.
Design A.
3885
PATENTED MAR 8 1870
Fig: 1.

Figure 1A. US design patent D03885, granted to F. S. Giles in 1870.

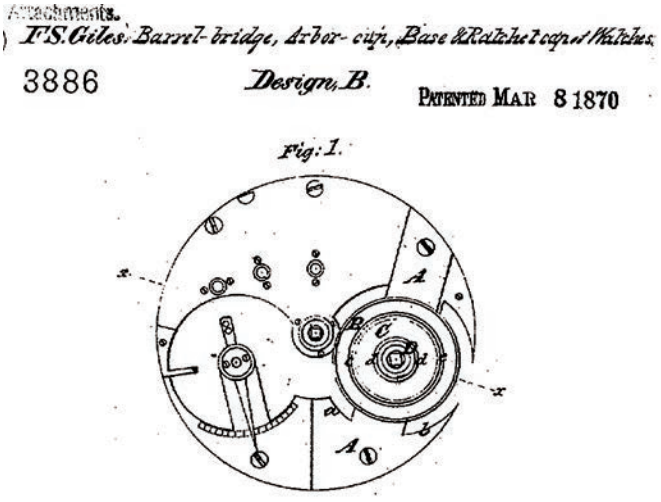

Attachments.
F.S.Giles. Barrel-bridge, Arbor-cap, Base & Ratchet cap of Watches.
3886
Design B.
PATENTED MAR 8 1870
Fig: 1.

Figure 1B. US design patent D03886, granted to F. S. Giles in 1870.

the owners of the United States Watch Co. In 1866,[14] Fayette Strafford-Giles had opened a representation house for Giles, Wales & Co. at Rue Leopold Robert 13, La Chaux-de-Fonds.[15] Fayette Strafford-Giles also patented a second design[16] (Figure 1A) assigned to Giles, Wales & Co.; watches with this movement are signed Albin Bourquin (Figure 2). In both of the Strafford-Giles's calibers, the balance cock has a fleche design, and therefore can be considered the origin of the fleche-ébauche calibers. When Albin Bourquin later developed the fleche-ébauche lever caliber, it kept the characteristic shape of the cock.

Figure 2. Movement signed "Albin Bourquin", serial number 317. PHOTO BY LUIGI PETRUCCI.

Figure 3. Advertisement from *The Jewelers' Circular and Horological Review* (1884) with the following references added: blue circle = ***Figure 3B***; green circle = ***Figure 3C;*** and purple circle = ***Figure 3D***.

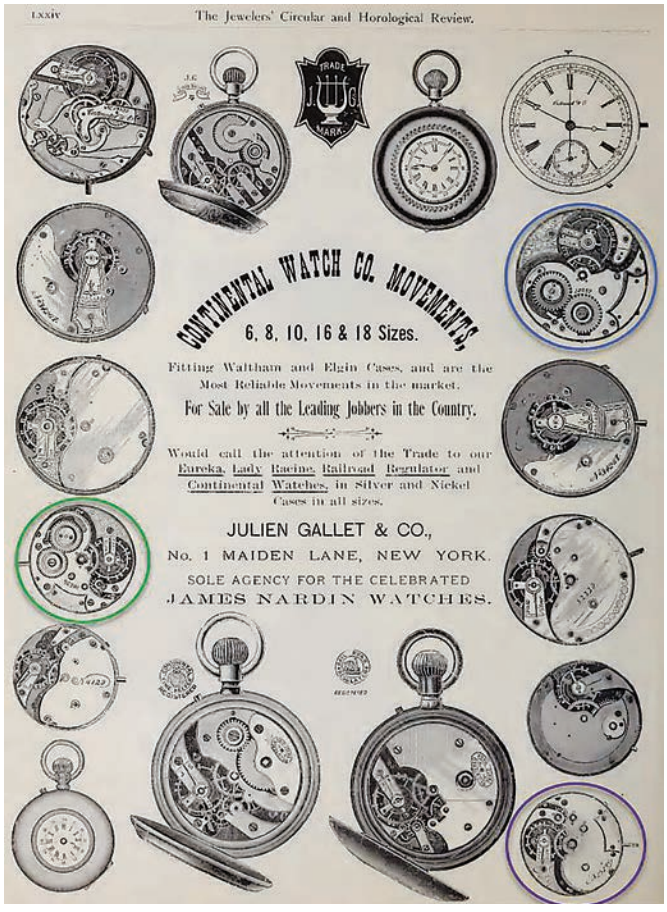


Figure 4. Movement signed "Clémence Frères", serial number 50136. REPRODUCED COURTESY OF JOHANNES MÜLLER & SÖHNE AG (SWITZERLAND).

Figure 5. Movement signed "Geo. Carley & Co.", serial number 51159, with a straight balance cock. REPRODUCED COURTESY OF JONES & HORAN HOROLOGICAL AUCTIONS, JONES-HORAN.COM.

Albin Bourquin died on March 27, 1874,[17] but the comptoir was still active four years after his death.[18] Later watches signed "Albin Bourquin" contain movements stamped with a trademark of the maison Julian Gallet.

By 1881, fleche-ébauche lever movements were sold in the US by Julien Gallet & Co. in four different grades.[19] The watches illustrated in ***Figure 3*** are represented in an advertisement of Julien Gallet & Co. dated 1884[20] (Figure 3). The lyre stamped on the movement of ***Figure 3C*** is a simplified version of the US trademark 08784[21] registered by Charles Perret,[22] the head of the company Julien Gallet & Co. in the US, and assigned to Léon Gallet on October 25, 1881. The trademark can be seen at the top of Figure 3; the simplified version was used on several watches sold by Julien Gallet & Co.

Julien Gallet founded the maison bearing that name in 1826 in La Chaux-de-Fonds.[23] After his death in 1848, the business was led by his widow, Anna Bourquin, together with Edouard Jeanneret,[24] who had been managing director of the company for four years.[25] In 1851, the son Lucien Gallet became co-managing director.[26] In 1854, Jeanneret left the company, and Lucien and Léon L. Gallet became partners.[27] Fritz A. Kupfer was the American agent of the maison Julien Gallet from 1856 onward.[28] When Kupfer died in 1864, Léon Gallet moved to the US and established a branch of the Julien Gallet company in New York City at 25 John St., succeeding Kupfer's business.[29] On January 1, 1883, Léon Gallet retired, and the Swiss branch of the business was taken over by his sons Julien and George Gallet, while the US branch was taken over by Julien Gallet and nephew Julien Racine together with Charles Perret.[30] Both branches operated under the name Julien Gallet & Co. The office in New York moved to 1 Maiden Lane, and in 1884 they opened a second office in Chicago.[31] On October 24, 1890, the US offices were taken over by Jules Racine and Charles Perret, who started operating under the name Jules Racine & Co.[32] The office in New York was moved to 180 Broadway, while the office in Chicago was put under the direction of Edward K. Boyd.[33]

THE PIVOTED-DETENT MOVEMENTS

In the previous article, three types of pivoted detent escapement were recognized, and these were associated with three different calibers, principally involving differences in the three-quarter plate arrangement. Movements with detent types 1 and 3 employed the

same typical Swiss sliding-pinion keyless work system with hand setting operated by a touch-piece projecting from the edge of the front plate under the dial near the pendant (***Figure 5B***). Movements with a type 2 detent employed a keyless system with a three-wheel rocking bar (*remontoir à bascule*) (***Figure 4B***). The *remontoir à bascule* was invented in 1847 by Antoine Le Coultre, who used it in the watch that won a gold medal at the exposition of 1851 in London.[34] Since Le Coultre did not patent it, it became very widely used, especially by US watch companies.

TYPE 2 FLECHE-ÉBAUCHE

On February 20, 1889, patent CH258[35] for an *échappement à détente perfectionné* was granted to the maison Clémence Frères; the patent lapsed in April 1894. For those five years, Clémence Frères manufactured the chronometers with caliber fleche-ébauche with pivoted detent escapement type 2 and the patented escapement, both with the fleche cock (Figure 4) and a straight cock (***Figure 2B***); the latter appears to have been targeted at the UK market and sold with the signature of "Geo. Carley & Co" (Figure 5).

In 1888, 29 chronometers with a detent escapement and a cylindrical hairspring, manufactured and deposited by Clémence Frères, received a certificate of Class D by the cantonal observatory of Neuchâtel:[36] for one of them they figured as the maker, for the remaining 28 (serial numbers between 50199 and 50741) the maker was indicated instead as *"D. W. à C."* (Dueber Watch of Canton).

That Clémence Frères is the manufacturer of the Dueber chronometers is further confirmed by the following:

1. The Dueber chronometers ***(Figure 1C)*** look identical to the Clémence Frères chronometer in Figure 4.
2. As mentioned in the previous article, the escapement of the Dueber chronometers was made according to patent CH258 of Clémence Frères.
3. In the previous article, Dueber chronometers with serial numbers 50200, 50691, 50706, and 50738 are mentioned. Chronometers with the same serial number deposited by Clémence Frères for the maker "D. W. à C." received a Class D certificate in 1888.

By 1893, a further 69 chronometers with a detent escapement and a cylindrical hairspring manufactured by Clémence Frères/Eugène Clémence-Beurret had received a Class D certificate from the cantonal observatory of Neuchâtel;[37] not all, however, were fleche-ébauche calibers.

Figure 6. Advertisement for Eugene Clémence–Beurret, from *The Horological Journal* (1899).

The beginnings of the maison Clémence Frères are complicated by the fact that the brothers Clémence (at least three of them[38]) founded two companies with this name, one active as a watch case manufacturer and one as a watch manufacturer. The brothers were originally from Muriaux,[39] in the district of Franche-Montagnes, canton of Jura.

Clémence Frères was mentioned for the first time in 1855 as a manufacturer in La Ferrière, district of Courtelary, canton of Bern, who made watch cases in silver and rolled gold.[40] By 1859, the watch case business had moved to Les Bois in the district of Franche-Montagnes, first in Les Rosées[41] and then by 1868 in La Large-Journée.[42] From 1870 to 1873, the name was changed to Clémence Frères et fils.[43] In 1874, under the old name of Clémence Frères, it was also producing watch cases in gold.[44] By 1879, Charles Clémence had separated from Clémence Frères and manufactured watch cases in gold, while Jules Clémence kept producing watch cases in silver as the head of Clémence Frères, both at La Large-Journée.[45] The watch case manufacturer ceased to exist on December 20, 1889, following the death of Jules Clémence.[46]

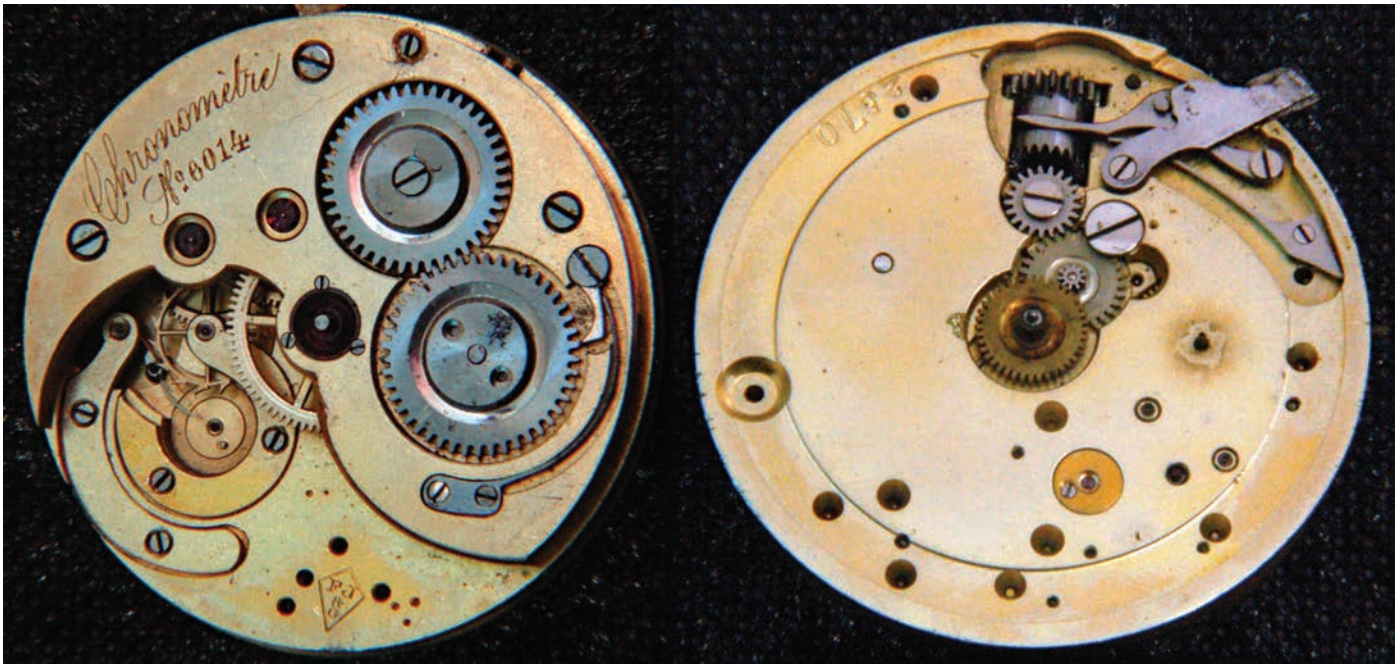
According to the advertisement in Figure 6,[47] the watch manufacturer Clémence Frères was founded in 1860 as a separate entity from the watch case manufacturing; however, the first mention of the watch manufacturer business is not until 1870 when the company was called Clémence Frères et fils.[48] By 1870, the watch manufacturing business already had a subsidiary in London set up by Victor Clémence, who had moved there after 1865 with the entire family.[49] In 1883, Eugène Clémence was the head of Clémence Frères, a watch manufacturer registered in Les Bois.[50] By 1884, the

Figure 7. Advertisement for George Carley & Co. and Clémence Frères, from *La Fédération Horlogère* (1896).

maison had moved to La Chaux-de-Fonds, and Eugène Clémence-Beurret, son of Eugène Clémence, became the head of the company.[51]

In 1884, Clémence Frères registered (as Swiss model 1457) the caliber with bars and the chronograph caliber shown in Figure 7. In addition to patent CH258 for a detent escapement used in the fleche-ébauche caliber, it was granted Swiss patent CH259 in 1889 and UK patent 9152 in 1895 for "improvements in chronographs." In 1891, the London subsidiary, by now led by Joseph Auguste, son of Victor Clémence, was assigned the business and building of the British manufacturer Geo. Carley & Co., which had gone bankrupt the year before[52] (Figure 7). The two businesses were officially joined only in 1904 as Carley & Clémence Ltd.[53] On September 30, 1892, Clémence Frères in Switzerland was renamed Eug[e]. Clémence-Beurret, succ[r]. de Clémence Frères[54] (Figure 6). By 1894, it had opened a subsidiary in Guyaquil,[55] Ecuador, and several Type 2 chronometers found from sales originating in Argentina presumably originated from this subsidiary. In 1899, it opened another subsidiary in Geneva.[56] On October 18, 1909, following the death of Eugène, the company was renamed Clémence Frères et Cie, successeurs de Eugène Clémence-Beurret,[57] shortened in 1936 to Clémence Frères et Co.[58] In 1951, it became Arthur Dorsaz & Cie, Montres Dogma, successeur de Clémence Frères et Co.,[59] and it was bought in 1972 by Aubry Frères SA.[60]

Figure 8. Movement with F. Jaquet & Girard's trademark, serial number 6014.
PHOTO BY LUIGI PETRUCCI.



TYPE 1 AND TYPE 3 FLECHE-ÉBAUCHE MOVEMENTS

It appears that all finissages used for type 1 and type 3 fleche-ébauche movements were manufactured by the ébauches and finissages maker Charles Hahn & Cie, at the time "undoubtedly the most important in this sector, not only in terms of the quantity of pieces, but above all in terms of the diversity of calibres, the variety of [watch] styles and the quality of the products."[61] In 1896, the company presented 266 finissages of 162 different calibers at the Swiss national exposition in Geneva and was awarded a silver medal.[62]

It was founded on December 31, 1844, by Aimé-Auguste and Charles-Alfred Hahn under the name Hahn Frères[63] and was situated at Rue Charrière 2, La Chaux-de-Fonds.[64] In 1875 or 1876, the firm moved to Landeron and was renamed Hahn Frères & Cie, fabrique d'ébauches et finissages.[65] On April 1, 1889, it became a limited partnership under the name Charles Hahn & Cie.[66]

TYPE 1 FLECHE-ÉBAUCHE MOVEMENTS

The company F. Jaquet & Girard, producers of the fleche-ébauche movements with pivoted detent escapement type 1, was founded on May 1, 1894,[67] by the watchmakers Félix-Auguste Jaquet and Fritz Girard.[68] Jaquet was originally from Neuchatel and in 1882 married the *régleuse* (timer) Laura-Emma Monnier.[69] Girard was a renowned timer.[70] Their movements varied from high quality, with a reserve going indication in the collection of the British Museum,[71] to the basic quality of the movement in Figure 8, where the impulse jewel is a pallet for a lever escapement. Movements are marked with the trademark registered in 1894 (Figure 9) either on the dial side of the front plate as in the British Museum example[72] or under the balance cock (Figure 8).


31 octobre 1894, 8 h. a.
No 7165.
F. Jaquet & Girard, fabricants,
Chaux-de-Fonds (Suisse).
FJ
&
G
Boîtes, mouvements, cuvettes et emballage de montres.

Figure 9. Swiss trademark for F. Jaquet & Girard.

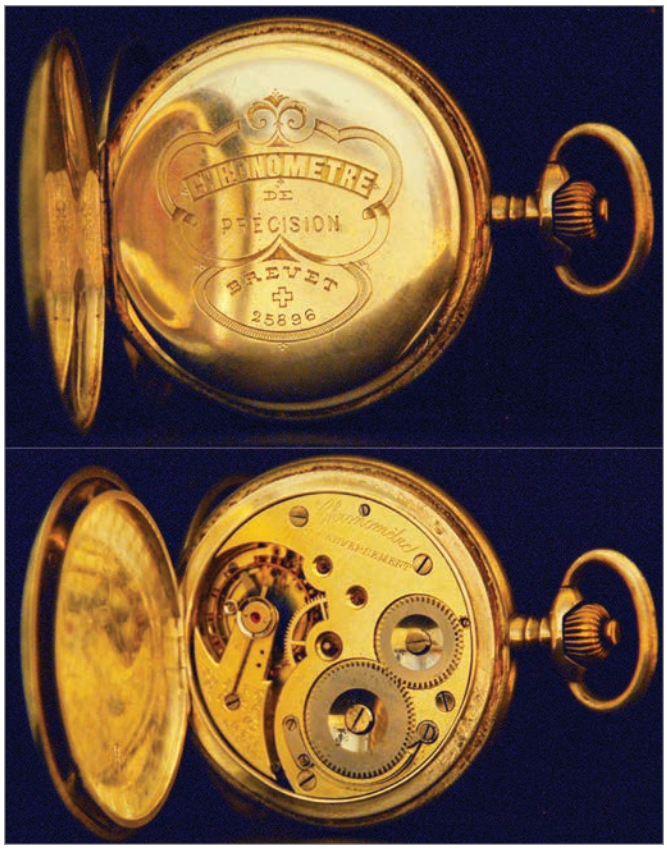


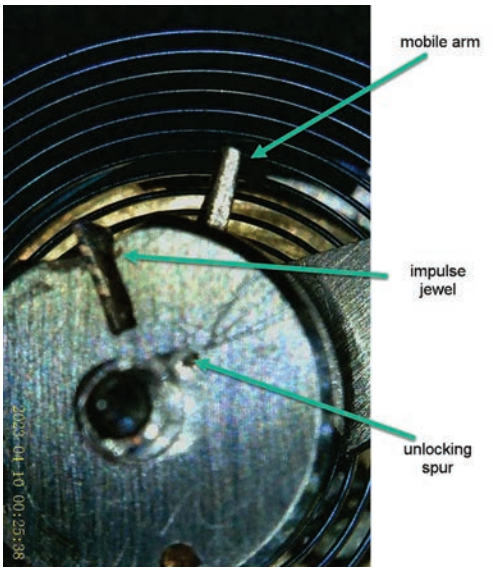
Figure 10. *Chronomètre à renversement* with F. Jaquet & Girard patent CH25896. PHOTOS BY LUIGI PETRUCCI.

Many watches remain anonymous, but one of their main clients was Maurice Woog: the trademark on the movement in ***Figure 5A*** was registered by Woog in 1887. He also used the trademark "La Maisonette" in 1899 after the death of Paul Mathey-Doret; in 1904, the Maurice Woog company was renamed Maurice Woog, Fabrique la Maisonette. Other movements were inscribed as follows: The Aristocratic Watch (Picard & Cie), L. Leroy & Co.,[73] Richard Hornby (a gimballed chronometer),[74] Avenir (Begeuelin & Cie), and Maurice Dreyfus.[75]

In 1903, F. Jaquet & Girard was granted a patent (CH25896) titled *Dispositif de renversement perfectionné pour échappements à détente*. As described in the previous article (***Figure 9F***), the invention is a tripping prevention system banking the balance to prevent it from making a complete turn.[76] Since the bank causes the balance to invert (*renverse*) its motion, the tripping prevention system is named *dispositive de renversement*. The patent was maintained until November 1921. The tripping prevention system was used, for example, in

all movements with the inscription *Chronomètre à renversement*. These movements came with a cylindrical hairspring (***Figure 5B***) or a blued Breguet one (Figure 10). The balance of the latter with the tripping prevention system is visible in Figure 11. In September 1916, the company was dissolved[77] following the death of Felix-Auguste Jaquet in October 1915;[78] the liquidation was completed in November 1922.[79]

Fritz Girard continued on his own producing the chronometers à renversement[80] (Figure 12). In 1920, he was named by the communal council of La Chaux-de-Fonds as the assistant timer for the city's clocks[81] and then became the city clockmaker in 1930.[82] Girard died in January 1935 at age 72.[83]



◀ **Figure 11.** Tripping protection system (*dispositive de renversement*) patented by F. Jaquet & Girard. PHOTO BY LUIGI PETRUCCI.


HORLOGERIE SOIGNÉE
FRITZ GIRARD
Ancienne Maison F. Jaquet & Girard
5, RUE DU NORD TÉLÉPHONE 7.87
LA CHAUX-DE-FONDS
CHRONOMÈTRES EN TOUS GENRES
brevetés à renversement
MONTRES OR Ancre bon marché garanties soignées avec Bulletin d'Observatoire

Figure 12. Advertisement of Fritz Girard for chronometers à renversement.

In the previous article, all recorded type 1 movements had low-level detent cocks, but a type 1 movement has since been discovered with the detent cock carried on the extended three-quarter plate (Figure 13). The three-quarter plate has a shape similar to the *Système Glashütte* calibers. This ébauche was registered in 1897 by Charles Hahn & Cie as one of eight designs in the Swiss model 4540 (Figure 14). In Figure 13, the word "DEPOSÉ" on the dial side of the front plate signals the existence of the deposited model. Already at the Swiss national exposition of 1896, Charles Hahn & Cie had shown three finissages of chronometer calibers (one open face and two hunters) so described: "'20' ¼-plate, détente escapement, visible winding mechanism (*remontoir en vue*), Système Glashütte,"[84] in other words, three finissages of the fleche-ébauche movement in Figure 13.

Since the keyless work and the dial side of the front plate of the movement of Figure 13 are identical to the types 1 and 3 fleche-ébauche movements shown in the previous article, it can be reasonably assumed that Charles Hahn & Cie was the finissage maker of both types.

TYPE 3 FLECHE-ÉBAUCHE MOVEMENTS

The company Ed. Glauser was founded on November 20, 1889, by Edouard Glauser from Ferenbalm (Bern)[85] and was situated at Rue Progrès 65, Le Locle.[86] Ed. Glauser produced the fleche-ébauche movements with pivoted detent escapement type 3. By 1896, it had moved to Rue Gare 3 and advertised itself as specializing in chronometers with detent escapements.[87] In the same year, Ed. Glauser took part in the Swiss national exposition and won a silver medal for chronometers.[88] In January 1902, it obtained a license to build the beat-adjustment device according to patent CH21639 granted to Charles Rosat.[89] In February of the same year, Ed. Glauser registered Swiss model 8466 (Figure 15) for a cock with a mobile hairspring stud. ***Figure 6B*** shows a type 3 fleche-ébauche movement with a cock shaped according to Swiss model 8466 and, thanks to the license, the patent number 21639 inscribed on it. In July 1904, Glauser sold the company to Maurice Woog.[90]

Woog's interest in the fleche-ébauche detent movements began with the company Woog & Grumbach, predecessor of the Maurice Woog Co. The firm was active in the detent escapement chronometer market. Between 1887 and 1897, it obtained 217 *bulletins de marche* from the Bureau d'observation de montres de poche of Saint-Imier for chronometers with detent escapements.[91] At the

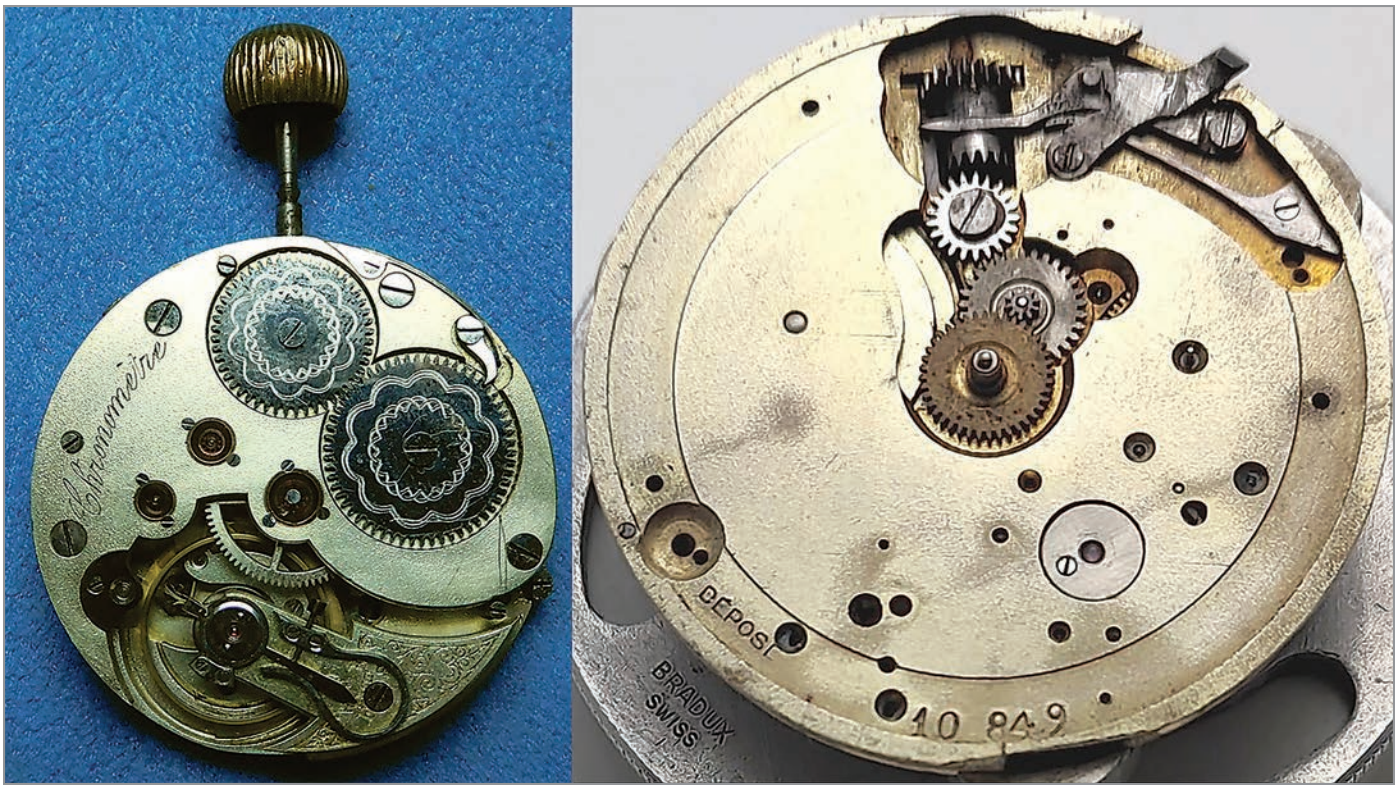
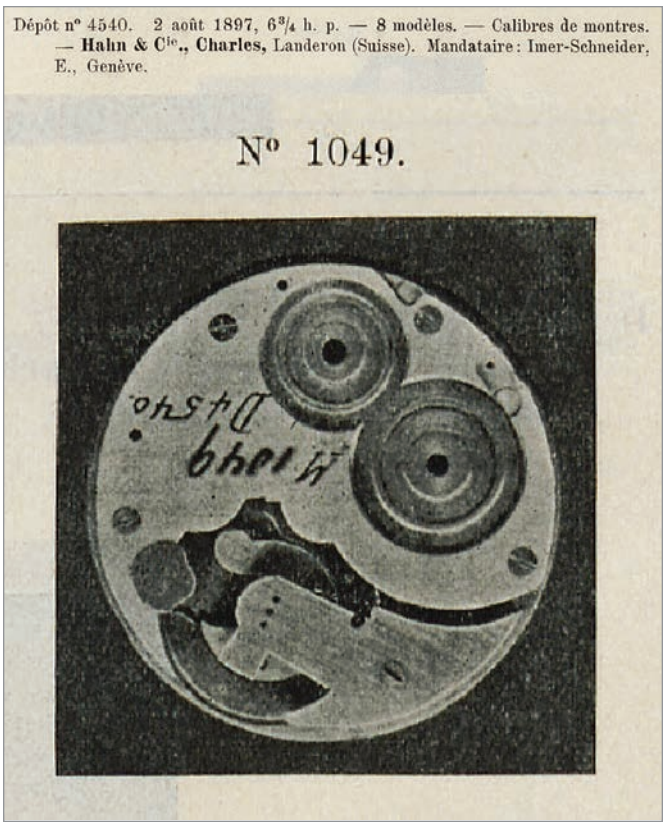


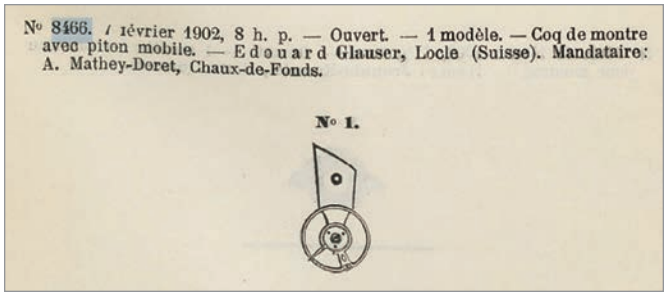
Figure 13. Movement serial number 1049. REPRODUCED COURTESY OF A PRIVATE COLLECTOR.


Dépôt nº 4540. 2 août 1897, 6¾ h. p. — 8 modèles. — Calibres de montres. — **Hahn & Cie., Charles,** Landeron (Suisse). Mandataire: Imer-Schneider, E., Genève.

Nº 1049.

◀ **Figure 14.** Ébauche registered in 1897 by Charles Hahn & Cie as one of eight designs of the Swiss model 4540.

▼ **Figure 15.** Swiss model 8466 for a cock with a mobile hairspring stud.


Nº 8466. 1 février 1902, 8 h. p. — Ouvert. — 1 modèle. — Coq de montre avec piton mobile. — Edouard Glauser, Locle (Suisse). Mandataire: A. Mathey-Doret, Chaux-de-Fonds.

Nº 1.

end of 1897, Maurice Woog and Jules Grumbach split.[92] As Grumbach was the detent escapement expert (he started obtaining bulletins de marche for his chronometers[93]), Woog suddenly needed a new source of chronometers with detent escapements. Furthermore, the fact that both type 1 and type 3 were sold by Woog explains the similarities in the aspect of the two calibers.

CONCLUSIONS

The names and timelines of the companies that manufactured fleche-ébauche movements have been clarified. Between the 1870s and about 1920, there was almost always a fleche-ébauche caliber on the market.

The fleche-ébauche lever caliber was developed in the 1870s by Albin Bourquin, influenced by a caliber of Fayette Strafford-Giles. Movements based on this caliber were produced by Bourquin himself first and then by Julien Gallet & Co. until at least 1884. The *à bas* (hidden wheel) nickel fleche-ébauche movements with a detent cock level with the three-quarter plate were manufactured by Clémence Frères between 1888 and 1894 and fitted with its patented pivoted detent escapement. Some movements were marketed by Dueber. Movements fitted with type 1 and type 3 pivoted detent escapements were manufactured by F. Jaquet & Girard (and later by Girard only) and Ed. Glauser, respectively. The movements manufactured by F. Jaquet & Girard from 1894 to about 1920 had low-level detent cocks; an example is also known with a detent pivot jewel on the three-quarter plate, whose caliber was registered as a Swiss model by Charles Hahn & Cie.

Because all type 1 and type 3 fleche-ébauche movements use the same keyless work and have identical dial side front plates, it can be safely assumed that they are all based on a finissage by Charles Hahn & Cie. Actually, it is quite probable that all fleche-ébauche movements use ébauches/finissages from Charles Hahn & Cie: in the Swiss cottage system, comptoirs normally did not have the machines to produce bars and plates. Therefore, Albin Bourquin had to order them from an ébauche maker, and it seems reasonable that he enlisted the services of the "local" ébauche and finissage maker Hahn Frères & Co, known for its availability to produce private designs. Once the basic design was known, further developments were made.

The long-held attribution of the type 1 fleche-ébauche movements to the French company LIP appears to have originated in the *Complete Price Guide to Watches* (already present in the 2002 edition[94]): "Lip in Besancon France, advertised this movement in about 1910–30 as being a movement they made."[95] However, this attribution is in error: although LIP sold (and advertised) two types of chronometer with cylindrical balance springs, one of them—the (chrono)micrometer—used a lever escapement and was based on the LIP caliber, while the other one—presented for the "torpilleurs watch" competitions by the French Navy—was based on the LIP caliber 40. Furthermore, LIP referred to the Continental definition of chronometers that included any watch that had obtained a bulletin de marche, independent of the type of escapement used.

Notes and References

1. Alan Myers, "Swiss 'Fleche-Ébauche' Chronometers," *Watch & Clock Bulletin* 64, no. 460 (November/December 2022): 373–82.
2. Roughly, a *finissage* comprised the plates and bars (i.e., the ébauche), the going train, the dial train as well as the winding and setting mechanism.
3. *L'Industriel alsacien: Journal quotidien de Mulhouse* (April 1, 1874).
4. *Recueil des arrêts de la cour d'appel de la république et canton de Neuchâtel* III (Neuchâtel, Switzerland: Charles Leidecker, 1855), 391.
5. *Indicateur des Montagnes pour 1855* XI (Chaux-de-Fonds, Switzerland: Ferd. Heinzely, 1854), 23.
6. *Almanach de Commerce des Montagnes pour 1843* (Chaux-de-Fonds, Switzerland: Convert et Heinzely, 1842), 27.
7. *Indicateur des Montagnes pour 1855* XI, 55.
8. *Almanach de Commerce des Montagnes pour 1843*, 27.
9. *Indicateur des Montagnes pour 1855* XI, 23.
10. *Le National Suisse* 8, no. 79 (July 4, 1863).
11. William Muir and Bernard Kraus, *Marion: A History of the United States Watch Company* (Columbia, PA: NAWCC, 1985), 66-67. Muir and Kraus indicate that the contract was fulfilled by the Bourquins of Bienne; however, they appear to have mixed up two different watchmakers. On the footnote on page 66 they refer to a 10-size watch signed Bourquin: this appears to be the movement in Figure 2 of the present article and signed A. Bourquin, Chaux-de-Fonds. On page 67 of their article, Muir and Kraus then show an 18-size watch signed L. A. Bourquin (i.e., Louis Adolf Bourquin) of Bienne. The watches with the caliber according to Design A and signed Albin Bourquin point clearly to the latter.
12. Pocket Watch Database, https://pocketwatchdatabase.com/.
13. Freely downloadable at ppubs.uspto.gov using the format D003885.
14. Muir and Kraus, *Marion: A History of the United States Watch Company,* 63.
15. Invoice to Ulysses S. Grant dated 1873, available at https://www.loc.gov/resource/mss23333.a17_0166_0193/?sp=2.
16. Freely downloadable at ppubs.uspto.gov using the format D003886.
17. *L'Industriel alsacien: Journal quotidien de Mulhouse* (April 1, 1874).
18. *Le National Suisse* 23, no. 108 (May 8, 1878).

19. *The Jewelers' Circular and Horological Review* XI, n. 12 (January 1881): x.
20. *The Jewelers' Circular and Horological Review* XIV [Part 2] (1884–1885): xxiv.
21. Freely downloadable at tsdr.uspto.gov.
22. The trademark of Achille Ditisheim referred to in the previous article was registered in 1884 for watches destined to be sold by Lambertus Isaac van Lier, a Dutch jeweler.
23. *The Jewelers' Circular and Horological Review* XXXVIII, no. 16 (March 17, 1899): 17.
24. *FAN – L'Express* (October 4, 1849).
25. *FAN – L'Express* (January 30, 1845).
26. *FAN – L'Express* (February 27, 1851).
27. *FAN – L'Express* (February 16, 1854).
28. *The Jewelers' Circular and Horological Review* XXX, no. 1 (February 6, 1895): 32. See also H. Wilson, *Trow's New York City Directory,* vol. LXXVI (New York: John F. Trow, 1862): 491.
29. *The Jewelers' Circular and Horological Review* XXXVIII, no. 16 (March 17, 1899): 17.
30. *The Jewelers' Circular and Horological Review* XXXVIII, no. 16 (March 17, 1899): 17.
31. *The Jewelers' Circular and Horological Review* XXXVIII, no. 16 (March 17, 1899): 17.
32. *The Jewelers' Circular and Horological Review* XXX, no. 1 (February 6, 1895): 32.
33. *The Jewelers' Circular and Horological Review* XXX, no. 1 (February 6, 1895): 32.
34. "Expert in Watch Complications," Jaeger-LeCoultre, https://www.jaeger-lecoultre.com/eu-fr/our-maison/masters-of-complications.
35. All cited patents are freely downloadable at worldwide.espacenet.com.
36. *Rapport du Directeur de l'Observatoire Cantonal de Neuchâtel au Département de l'Industrie et de l'Agriculture sur le Concours de Chronomètres observés pendant l'année 1888* (Locle, Switzerland: Société Locloise d'Imprimerie, 1889), Table IV.
37. *Rapport du Directeur de l'Observatoire Cantonal de Neuchâtel au Département de l'Industrie et de l'Agriculture sur le Concours de Chronomètres*, 1889–1893.
38. *Le Franc-Montagnard* 75, no. 10648 (May 17, 1973).
39. *Feuille officielle suisse du commerce* (FOSC) I, no. 36 (March 13, 1883): 271.
40. *Indicateur des Montagnes pour 1855* XI (Chaux-de-Fonds, Switzerland: Ferd. Heinzely, 1854), 200.
41. *Indicateur des Montagnes pour 1860* XIV (Chaux-de-Fonds, Switzerland: Ferd. Heinzely, 1859), 151.
42. *Indicateur de l'Horlogerie Suisse, du Commerce et de l'Industrie des Montagnes et du Canton de Neuchâtel en général, 1869-1870* VI (Neuchâtel, Switzerland: F. L. Davoine; 1869), 128.
43. *Indicateur de l'Horlogerie Suisse, du Commerce er de l'Industrie des Montagnes et du Canton de Neuchâtel en général, 1871-1872* VII (Neuchâtel, Switzerland: F. L. Davoine, 1871), 182.
44. *Almanach Commercial et Industriel du Canton de Neuchatel et Indicateur de l'Horlogerie Suisse et des Fabriques de Bijouterie et Pieces à Musique*, *1875–1876* (Neuchâtel, Switzerland: F. L. Davoine, 1875), 186.
45. *Indicateur (1880–1882)* XXVIII (Neuchâtel, Switzerland: F. L. Davoine), 156.
46. *FOSC* VII, no. 197 (December 28, 1889): 932.
47. *La Fédération Horlogère* X, no. 42 (May 24, 1896): 219.
48. *Indicateur de l'Horlogerie Suisse, du Commerce er de l'Industrie des Montagnes et du Canton de Neuchâtel en général, 1871–1872* VII (Neuchâtel, Switzerland: F. L. Davoine, 1871), 182.
49. *The Horological Journal* LVII, no. 678 (February 1915): 80.
50. *Feuille officielle suisse du commerce* I, no. 36 (March 13, 1883): 271.
51. *Feuille officielle suisse du commerce* II, no 31 (April 17, 1884): 280.
52. *The Horological Journal* XXXVI, no. 6 (February 1894): 92–93.
53. *The Horological Journal* XLVI, no. 545 (January 1904): 69.
54. *Feuille officielle suisse du commerce* X, no. 216 (October 6, 1892): 280.
55. *Indicateur-Davoine 1894-1895* XXXVII (La Chaux-de-Fonds, Switzerland: Bureau de l'Indicateur, 1894), 148.
56. *Feuille officielle suisse du commerce* XVII, no. 200 (June 17, 1899): 807.
57. *Feuille officielle suisse du commerce* XVII, no. 264 (October 22, 1909): 1,778.
58. *Feuille officielle suisse du commerce* LIV, no. 53 (March 3, 1936): 541.
59. *Feuille officielle suisse du commerce* LXIX, no. 171 (July 25, 1951): 1862.
60. *Feuille officielle suisse du commerce* XC, no. 41 (February 2, 1972): 425.
61. *La Fédération Horlogère* X, no. 72 (September 6, 1896): 375.
62. *La Fédération Horlogère* X, no. 72 (September 6, 1896): 375.
63. *FAN - L'Express* (January 30, 1845).
64. *Indicateur des montagnes pour 1865* II (Chaux-de-Fonds, Switzerland: F. L. Davoine, 1864), 5.
65. *Indicateur pour 1877–1878* XVIII (Chaux-de-Fonds, Switzerland: Courvoisier, 1876), 116.
66. *Feuille officielle suisse du commerce* VII, no. 114 (June 27, 1889): 564.
67. Clémence Frères let patent CH258 lapse also in 1894 and stopped producing the fleche-ébauche caliber; no official document connecting the two events was found, but it is a curious coincidence.
68. *Feuille officielle suisse du commerce* XII, no. 235 (October 27, 1894): 967.
69. *L'Impartial* (June 9, 1882). Jaquet and Monnier had two children (*Le National Suisse* 42, no. 74 [March 30, 1897]; *Le National Suisse* 50, no. 262 [November 8, 1905]).
70. *L'Impartial* (January 22, 1935).
71. Anthony G. Randall and Richard Good, *Catalogue of Watches in the British Museum* VI (London: British Museum Publications Ltd., 1990), 57–58, plate 25c–f.

72. "Chronometer Watch," The British Museum, https://www.britishmuseum.org/collection/object/H_1972-0405-1.
73. Marvin E. Whitney, "The Pocket Chronometer," *Horological Times* 4, no. 1 (January 1980): 42.
74. Whitney, "The Pocket Chronometer," 43.
75. M. Cutmore, *The Watch Collector's Handbook* (Rutland, VT: Charles E. Tuttle Co., Inc., 1976), 87.
76. In the previous article, the system of patent CH25896 is erroneously indicated as a "mechanism to prevent overbanking" due to an error in translating *renversement.* The balance of a verge or cylinder escapement can overbank (*renverse*), thereby stopping the watch. However, the balance of a detent escapement is not banked as the ones of verge and cylinder escapements are and therefore cannot overbank.
77. *Feuille officielle suisse du commerce* XXXIV, no. 221 (September 20, 1916): 1,445.
78. *L'Impartial* (October 26, 1915).
79. *Feuille officielle suisse du commerce* XL, no. 286 (December 20, 1922): 2,311.
80. *Indicateur-Davoine 1922* LXXVI (La Chaux-de-Fonds, Switzerland: A. Gogler S.A., 1921), 254.
81. *Le National Suisse* 64, no. 16 (January 21, 1920).
82. *L'Impartial* (January 22, 1935).
83. *L'Impartial* (January 22, 1935).
84. *La Fédération Horlogère* X, no. 72 (September 6, 1896): 375.
85. *Feuille officielle suisse du commerce* VII, no. 181 (November 23, 1889): 864.
86. *Indicateur-Davoine 1890–1891* XXXIV (Neuchâtel, Switzerland: F. L. Davoine, 1889), 63.
87. *Indicateur-Davoine 1896–1897* LXXVI (La Chaux-de-Fonds, Switzerland: A. Maridor, 1896), 244.
88. *Le National Suisse* 41, no. 229 (September 26, 1896).
89. *Feuille officielle suisse du commerce* XX, no. 53 (February 13, 1902): 211.
90. *Feuille officielle suisse du commerce* XXII, no. 294 (July 25, 1904): 1,174.
91. *Journal Suisse d'Horlogerie,* 1887 to 1897.
92. *Feuille officielle suisse du commerce* XVI, no. 3 (January 5, 1898): 11.
93. *Journal Suisse d'Horlogerie* XXIV, no. 5 (November 1899): 150.
94. C. Shugart, T. Engle, and R. E. Gilbert, *Complete Price Guide to Watches* (Cleveland, TN: Cooksey Shugart Publications, 2002), 560.
95. "Swiss or French Chronometer/Spring or Pivoted," NAWCC Forums, https://mb.nawcc.org/threads/swiss-or-french-chronometer-spring-or-pivoted.22956/post-155477.

Acknowledgments
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About the Authors

Alan Myers, BS, PhD, DSc, is professor emeritus of zoology at University College Cork, Ireland. His interest in pocket watches began with a study of the "Jones" watches that led to a cooperative book on them commissioned and published by IWC Schaffhausen. This was followed by a book on the later Seeland, Pfister-Droz, and Tschopp watches of IWC. His interest in Howard watches led to the publication of several articles on early EH&Co watches that have appeared in previous issues of the *Bulletin* as well as in European journals. He has published a number of articles on 19th-century Swiss pocket watches as well as on English karrusels.

Luigi Petrucci was born in Rome, where he studied engineering, specializing in aeronautical, rocket, and electric space propulsion. After working for about 20 years as a patent examiner at the European Patent Office in the Netherlands, he discovered the world of pocket watches about five years ago and has been hooked ever since. Luigi is fascinated by both the mechanics of watches and the stories they tell. He is currently training to become a watchmaker and has published articles in the *Watch & Clock Bulletin*, *Chronométrophilia*, *La Voce di Hora*, and *Antiquarian Horology*. Luigi is also active in pocket watch forums under the name VinSer.

One Poet's Life

Before I die
I'd like a story
That in the beginning
Transgressions were there
And shame was doubled by want
Yet somehow diaphony came
And like a flower through tar
A poet was born
He studied in English and French
Got married
When love was young
Had lots of books a caring
Profession and a few
Tsunamis and mountain peaks
(He joked that his vintage watches
Told up-and-down time)
And like a cat on its rounds
That notices at the end of a room
A sudden
Mysterious catnip
He'd do things
And out of nowhere
A poem would show itself

The length of time we will have on Earth is unknown to all of us, but many of us would like to write down the time we had, as a testament to our lives. Memoirs are a favorite form of writing. This poem is one person's short memoir. Maybe it will encourage others to write theirs. Ray Comeau is past associate dean of management studies and director of foreign language instruction in Harvard Extension School, where he still teaches courses on the intersection of management, philosophy, and literature. He is a member of NAWCC Chapters 8 and 87 in his native Massachusetts. His email is comeau@fas.harvard.edu.

Watch Stands

By Mike Darlow (AU)

INTRODUCTION

Why write about watch stands? In 1980, having just completed the three-year trade course in woodturning at Sydney Technical College, I was asked to make some copies of a stand (Figure 1) owned by antiques dealer John Hawkins for a shop in Kings Cross, Sydney. And I have been making them intermittently ever since.

Early small clocks and watches were hugely expensive and were therefore supplied in protective wood and/or leather cases. It wasn't long until some of these cases were designed so that the time could be read while the clock or watch was still inside. These cases were the forerunners of the watch stand. Watch stands were probably first made during the 17th century and were at their most popular during the second half of the 19th century. Some were made to commemorate events and served as souvenirs (Figure 2). Some watch stands also served as holders for cuff links and collar studs (Figure 3), stationery, writing equipment (Figure 4), or items associated with smoking.

In *Treen and Other Wooden Bygones*, Edward H. Pinto divides the uses of watch stands into two groups.[1] In the first group, when the owner of a bedside watch stand retired for the night, he or she removed the pocket watch from the garment and hung or placed it in the watch stand to create a temporary bedside clock. In the second group, Pinto's so-called mantelshelf watch stand enabled

Figure 1. A John Hawkins model watch stand in Australian red cedar with a brass hook. AUTHOR'S PHOTO.

▲▼ **Figure 2.** A propeller watch stand. I have seen another, so it seems likely that these were produced for a particular group of pilots to house their watches. AUTHOR'S PHOTO.

► **Figure 3.** A pine watch stand with a glass dome. AUTHOR'S PHOTO.

Figure 4. An ebony compendium that includes a watch stand. AUTHOR'S PHOTO.

◄► **Figure 5.** A chip-carved and obviously homemade watch stand. A steel nail is provided as a hook for the watch bow. AUTHOR'S PHOTO.

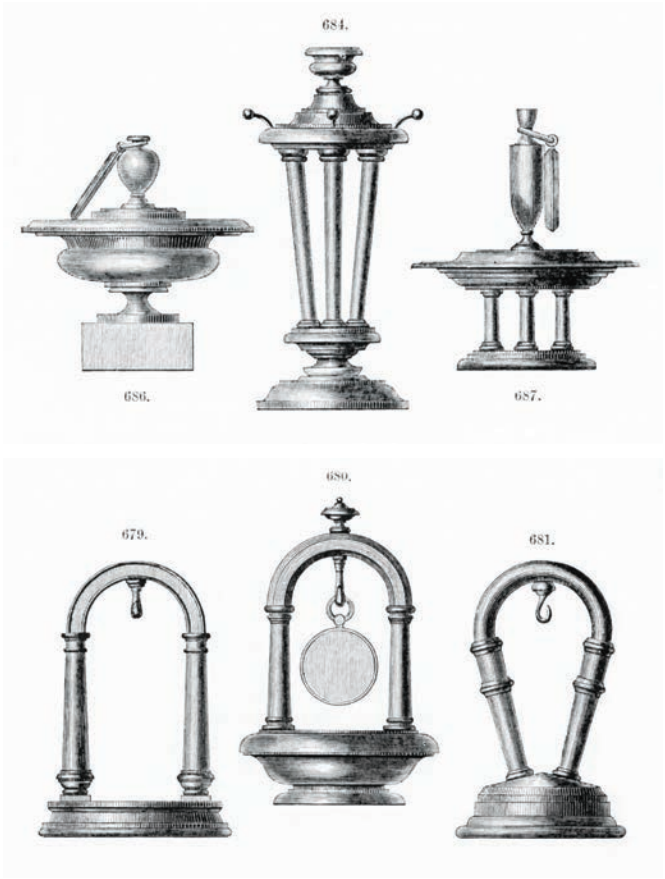
Figure 6. A castle gatehouse watch stand I made. The gatehouse has radiata pine, mahogany, and Queensland maple. Antique castle and gatehouse watch stands were normally painted. AUTHOR'S PHOTOS.

an unfashionable but working pocket watch to be used as a clock in the servants' quarters. Today, a watch stand is mainly used for displaying a watch once owned by a long-deceased relative or prized by a pocket watch collector. And there are even a few watch stand collectors.

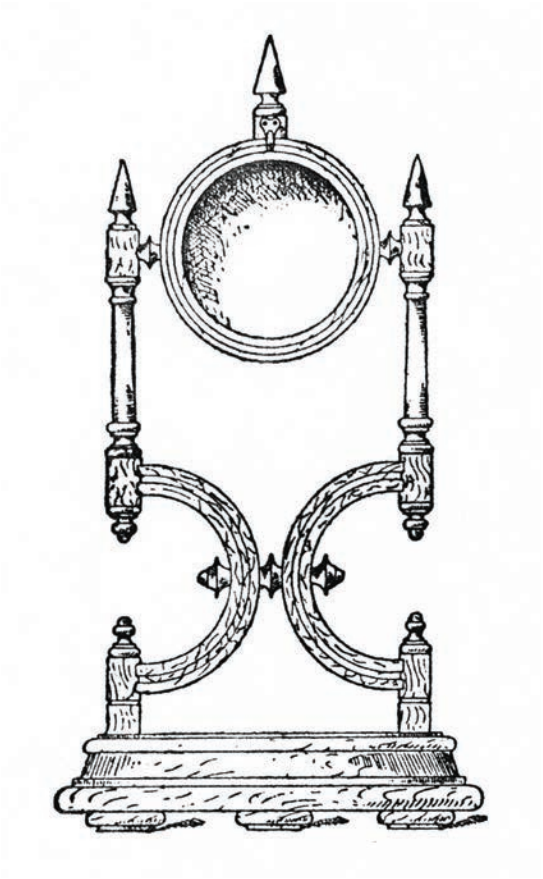
There have been commercial makers of beautiful watch stands in the past, but there are very few now. Many of the elaborate and idiosyncratic designs were made by individuals for their own use or given as gifts (Figure 5). Architectural mantelshelf watch stands can be large and fairly elaborate (Figure 6).

Watch stands have been made from metal, glass, porcelain and other ceramics (Figure 7), horn, hoof, bone and ivory, papier-mâché, solidified tree resin, wood, and in recent times, plastics. However, those assembled from turned wooden components are perhaps most common. Cloth, often elaborately embroidered, was used for making watch pockets, which were watch stand equivalents usually attached to bed hangings.

Figure 7. A Staffordshire pottery watch stand. The watch slips into the pocket at the rear. AUTHOR'S PHOTOS.



◄ **Figure 8.** Watch stand designs from John Jacob Holtzapffel's *Turning and Mechanical Manipulation*, vol. 4.



► **Figure 9.** A delicate design shown in Paul Nooncree Hasluck's *The Wood Turner's Handybook*.

◄ **Figure 10.** A single-pillar watch stand in yellow carabeen. AUTHOR'S PHOTO.

► **Figure 11.** A blackwood, single-pillar watch stand based on one pictured in plate 457 of Pinto's *Treen and Other Wooden Bygones*. AUTHOR'S PHOTO.

Although uncommon, turned watch stand designs, usually with instructions, appear in several woodturning textbooks such as those by John Jacob Holtzapffel[2] (Figure 8), Paul Nooncree Hasluck[3] (Figure 9), and *Keith Rowley's Woodturning Projects*.[4] Interest in watch stands is ongoing; a German book was recently published on the subject.[5] Watch stands are also occasionally pictured in auction catalogs and in books, magazines, and websites on small woodenware and on antiques. Specialist dealers in pocket watches may also sell watch stands.

Watch stands with turned components usually have one, two, three, or four columns supporting an arch or dome. The watch is usually hung or nested. Pocket watches with their pendants at 3 o'clock have to be nested or supported on pegs. Because they use little wood, ornate woods are preferred. Hooks, finials, and drop finials can be bone, ivory, or brass. Figures 10 to 13 show watch stands that I have made.

Notes and References

1. Edward H. Pinto, *Treen and Other Wooden Bygones* (London: Bell & Hyman, 1969), 424–26.
2. John Jacob Holtzapffel, *Turning and Mechanical Manipulation, Intended as a Work of General Reference and Practical Instruction, on the Lathe, and the Various Mechanical Pursuits Followed by Amateurs*, vol. 4 (London: Holtzapffel & Co., 1881).
3. Paul Nooncree Hasluck, *The Wood Turner's Handybook* (London: Crosby Lockwood and Son, 1887).
4. Keith Rowley, *Keith Rowley's Woodturning Projects* (Lewes, England: Guild of Master Craftsmen Publications Ltd., 1997).
5. Bernd Bauer, *Taschenuhrständer: Pocket Watch Stands: Porte-Montre* (Germany: Arnoldsche, 2024).

About the Author

Mike Darlow has been a professional woodturner since 1979. He has written eight books on woodturning and had three DVDs and more than 200 magazine articles published. To learn more about Mike's watch stand work, contact him at mike@mikedarlow.com.

Figure 12. A copy of a 19th-century, two-column watch stand in banksia and black apple. The hook and finial are bone. AUTHOR'S PHOTO.

Figure 13. A three-column watch stand in silky oak. AUTHOR'S PHOTO.

Handcrafted Spandrels

By Ross William Pollard (MN)

In this article, I explain how to use traditional bas-relief modeling and sand-casting techniques to create ornamental clock spandrels. With a little practice, these techniques can be used to make a wide variety of designs, including escutcheons, frets, and other custom case castings. My approach comprises (1) making a drawing, (2) modeling the spandrels in wax or clay, (3) molding and casting a plaster pattern, and (4) sand casting the finished product in metal.

STEP 1: THE DRAWING

For original designs, draft a layout of the dial using a ruler, T-square, triangle, and compass. Sketch in the spandrels and then use a sheet of tracing paper to continue refining and correcting the drawing as much as possible (Figure 1). Or, if you are attempting to reproduce a historic design, simply trace a photograph.

STEP 2: CLAY MODELING

Clip out the spandrel drawings and tape them under a piece of glass. Model the spandrels in wax or Plasticine on the glass using your fingers and a few simple tools (Figure 2). Block in the large masses first and then add details, being sure to stay within the outlines of the drawings as you build up the forms.

Finally, inspect your work for undercuts. It is important that the sides of the spandrels slant inward slightly. This angle is referred to as *draft*, and it is essential for easy molding and casting in steps 3 and 4.

GLOSSARY

Bas-relief: A sculpture in which the figures are raised slightly above the background.

Block in: To establish the fundamental forms of a sculpture or relief.

Cope: The upper half of a sand-casting flask.

Chasing: The art of touching up a raw casting with files, punches, gravers, etc.

Drag: The lower half of a sand-casting flask.

Flask: A two-part, box-like frame used for sand casting.

Rammer: A tool used to pack foundry sand over a pattern.

Riddle: A tool used to sift a fine layer of sand onto the pattern.

Runner: A channel that allows molten metal to flow into the mold cavity.

Sprue cutter: A length of pipe used to cut a vertical opening in the sand.

Sprue hole: An inlet where molten metal can be poured.

Strike stick: A straightedge used to level the sand in a casting flask.

▲ **Figure 1.** Drawing for a custom arched dial. AUTHOR'S PHOTO.

◄ **Figure 2.** Spandrels modeled in Plasticine on glass. Because all four corner spandrels are identical, it is only necessary to model one. Additional copies can be cast later. AUTHOR'S PHOTO.

STEP 3: MOLDING AND CASTING A PLASTER PATTERN

Erect a molding box around the glass with four boards. Waterproof the inner faces of the boards with petroleum jelly and press clay around the base and corner of each to hold it in place (Figure 3). Now mix up a batch of plaster by measuring cold water into a plastic bucket and sprinkling in the dry powder until it begins to mound above the surface of the water. Let the plaster slake until it is thoroughly wet, then pour off any unabsorbed water and stir.

Continue stirring until the plaster reaches a smooth, creamy consistency and then pour it into the molding box. Allow the plaster to slowly flow over and around the clay models, and then bump the table a bit to release any trapped air bubbles. After the plaster hardens, remove the molding box and use a razor blade to gently separate the mold from the glass.

When the mold is dry, seal it with shellac and apply a thin coat of petroleum jelly. Assemble the molding box around it and then mix up another batch of plaster. Pour the plaster into the mold and gently shake the table to release any trapped air bubbles. After the plaster sets, use a razor blade to expose the seam between the mold and the cast. Working from opposite sides, gently press the blade into the seam and wedge the two blocks apart. When the cast is dry, add your finishing touches and then seal with shellac (Figure 4). When the shellac is dry, the plaster pattern is ready for sand casting.

Figure 3. The molding box is ready to be filled with plaster. AUTHOR'S PHOTO.

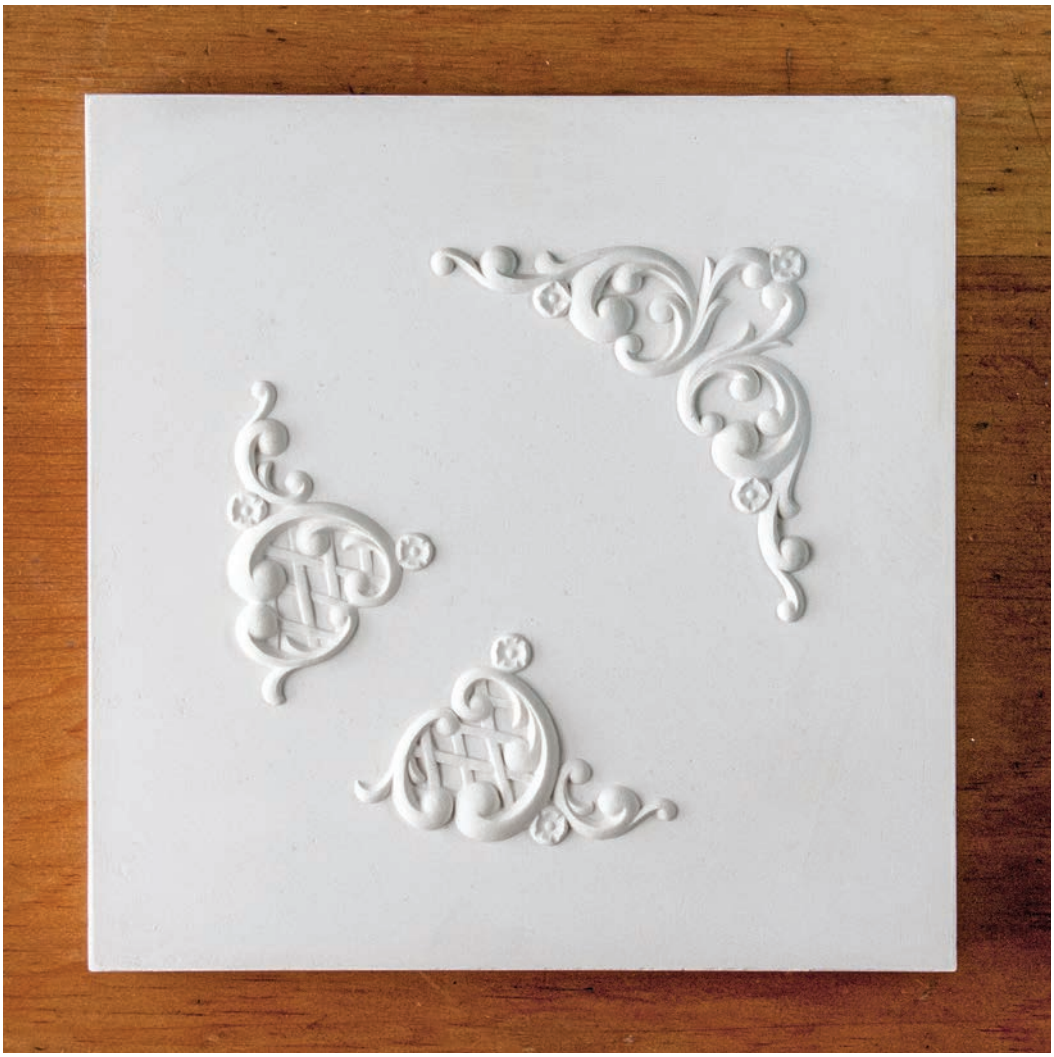


Figure 4. The finished plaster cast. AUTHOR'S PHOTO.

STEP 4: SAND CASTING

Figure 5 shows a homemade sand-casting kit consisting of a casting flask, riddle, sprue cutter, rammer, strike stick, and talc dusting brush. The flask was made from knot-free boards and sized to fit over the pattern. Grooves were cut into the inside faces of the boards to help hold the sand in place and indexing blocks added to keep the two halves of the flask in alignment. The riddle was made from wood and hardware cloth, the sprue cutter from 3/4" diameter copper pipe, and the rammer turned from a 2"x2"x12" piece of pine. The strike stick was made from a 2' length of 1"x4" lumber and the talc dusting brush purchased from an art supply store.

You will also need foundry sand, such as Petrobond, and a means of melting your metal. Fusible alloys like pewter can be melted on a hotplate in a cast iron skillet,

Figure 5. Clockwise from bottom left: casting flask, sprue cutter, riddle, rammer, strike stick, brush. AUTHOR'S PHOTO.

▲ **Figure 6.** The cope and drag ready for reassembly. Note the pattern impressions, sprue hole, and runners. AUTHOR'S PHOTO.

but brass will require a propane or electric melt furnace. Either way, work in a well-ventilated area and wear eye protection, a flame-resistant apron, and heavy-duty gloves.

To cast a set of spandrels, first dust the pattern with talc and then set the upper half of the flask, known as the cope, on top of it. Use the riddle to sift a fine layer of sand over the pattern and then continue packing sand into the cope until it mounds above the rim. The talc will keep the sand from sticking to the pattern and will transfer onto the mold impression. Stamp the sand tight with the ramming tool and level it with the strike stick. Carefully lift the cope vertically off of the pattern, blow away any loose sand, and then inspect the impression for imperfections.

Next, cut a sprue hole with the copper pipe and carve channels, or *runners*, between it and the pattern impressions (Figure 6). Now pack and strike the bottom

▼ **Figure 7.** Let the metal cool before removing it from the sand. AUTHOR'S PHOTO.

half of the flask, aka the *drag*, and reassemble with the cope. Pour molten metal into the sprue hole and, after it has cooled, remove the castings from the sand with a pair of pliers (Figure 7).

Clean the castings with a stiff brush and then cut off the runners (Figure 8). Next, touch up, or chase, the castings with needle files, gravers, fine sandpaper, etc. Finally, brighten the metal with #0000 steel wool and drill one or more holes in each spandrel for attachment to the dial (Figure 9).

▲ **Figure 8.** Fresh pewter castings ready for finishing. AUTHOR'S PHOTO.

▼ **Figure 9.** A finished casting, lightly chased and polished. AUTHOR'S PHOTO.

About the Author
Ross Pollard is a Minnesota artist specializing in bas-relief sculpture. He holds a degree in art history from the University of Wisconsin–Madison and is self-taught in the art of traditional clay and wax modeling. Contact him at P.O. Box 352, Blue Earth, MN 56013.

Novelty Watches through the Decades

By Bruce Shawkey (WI)

Almost since the invention of wristwatches, manufacturers have sought to add extra features. It wasn't enough to just tell time. The watch had to incorporate a compass, a notepad, a keyring for your auto, or a grille to match your Bugatti. Let's take a look at a sample of these novelty wristwatches.

But first, let's consider a very cool novelty pocket watch (Figure 1). While this looks like an ordinary nickel-plated pocket watch case, there is a surprise inside in the form of a tiny camera. The original owner was a cabinetmaker at J. Lancaster & Son in Birmingham who likely worked on the firm's wooden cameras. This 1886 ladies camera watch was in a 2007 Bonhams sale and sold for £21,600.[1]

Figure 2 shows what is perhaps the first novelty wristwatch: it has a built-in compass. It was made circa 1918 by Enicar, which is a reverse spelling of Artiste Racine, the Swiss founder's last name. This is actually a pocket watch made into a wristwatch with hinging lugs. It's quite long, at about 50 mm (2"). I can't imagine using the compass; it's about the size of a dime!

Next we have the Notora, invented by Favre Leuba in the 1920s (Figure 3). This somewhat ordinary wristwatch has a very special feature: a hidden compartment containing a scroll on rollers under the dial and movement. By pushing a little release button at the bottom of the case, the watch opens up to reveal the notepaper rolls that can be advanced by using the two roller knobs on the case. The owner can then write grocery lists, telephone numbers, reminders, or whatever needs to be handy and hidden.

Post-World War II intrigue gave us spy wristwatches that could take pictures and record conversations. A circa 1949 Steineck subminiature wrist camera could take up to eight pictures on a disc that was an inch in diameter (Figure 4). A Hanhart chronograph from 1949 contains a microphone (Figure 5). An attached cable ran up the wearer's arm, where a tape recorder was hidden under the shirt sleeve. These watches were widely produced and used by spy agencies around the world.[2]

There have long been novelty wristwatches associated with the automobile. Probably the first were the Bugatti radiator grille watches made by Mido in the 1920s (Figure 6). The grilles of Alfa Romeo, Benz, Buick, Chevrolet, Chrysler, Citroën, Fiat, Ford, Lincoln, Opel, Peugeot, and Rolls-Royce were also used in watch designs.[3] Today, grille watches are highly sought by watch and car aficionados

Figure 1. The quirky and tricky-to-use pocket watch camera. COURTESY OF BONHAMS.

Figure 2. Ad for the Enicar compass watch.

Figure 3. Favre Leuba Notora notepad watch. COURTESY OF HEIRLOOM GALLERY.

◄ **Figure 4.** Steineck spy camera watch. COURTESY OF THE INTERNATIONAL SPY MUSEUM.

▲ **Figure 5.** Hanhart spy watch with microphone. COURTESY OF ELSTOB AUCTIONEERS.

alike. Watches were also designed for the inside of the car, such as those attached to a key ring (Figures 7 and 8). The Marvin tire watch made a particularly striking key ring (Figure 9). Once you park your car, it's handy to have a 1960s Framont watch that will remind you to feed the parking meter (Figure 10). In the 1970s, steering wheel designs were popular, such as those from Old England Watches (Figure 11).

The Swiss watchmaking company Juvenia got into the novelty watch market with its Planete and Trigone models in the 1950s. These watches were so novel that they were difficult to use for telling time due to the shapes of the hands. They didn't sell well; I have never actually seen an example of either one (Figure 12).

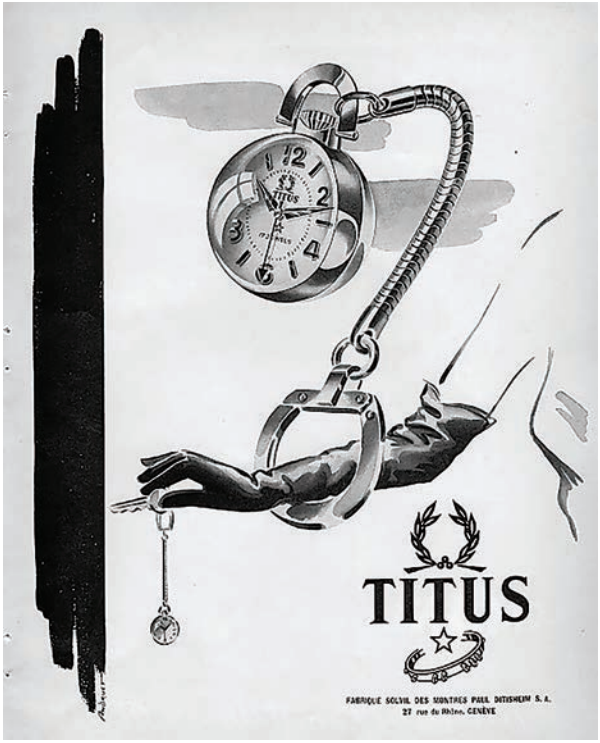


Figure 7. Ad from the 1950s for the Titus key-ring watch. AUTHOR'S IMAGE LIBRARY.

Figure 6. The ca. 1925 Mido watch commissioned by Ettore Bugatti to mimic the look of the horseshoe-shaped radiator grille of his cars. COURTESY OF BONHAMS.

Figure 8. Ad for the Key-watch from Fabrique d'Horlogerie de St. Blaise. AUTHOR'S IMAGE LIBRARY.

Figure 9. A 1954 ad for the Marvin tire watch.

Figure 10. A 1960s Framont parking meter watch. COURTESY OF RETROWATCHGUY.COM.

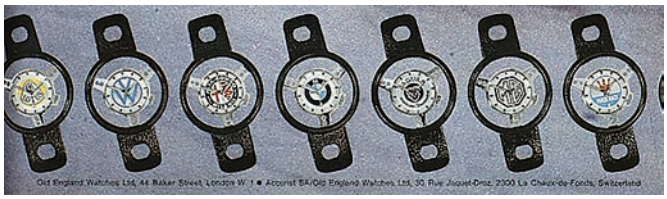


Figure 11. An ad for steering wheel watches from Old England Watches. AUTHOR'S IMAGE LIBRARY.

Figure 12. Juvenia ad promoting its Planete and Trigone models. The Planete's "hands circle like planets in the sky." AUTHOR'S IMAGE LIBRARY.

Figure 13. The Cocktail watch from Borel. COURTESY OF SECOND HAND HOROLOGY.

◄ **Figure 14.** Ticklish watch from the 1967 movie *In Like Flint*. AUTHOR'S IMAGE LIBRARY.

Figure 15. Hamilton Watch Co.'s stainless steel Pulsar II, ca. 1973—the first digital watch to be produced in significant numbers. COURTESY OF THE NATIONAL WATCH & CLOCK MUSEUM.

Swiss watchmaker Ernest Borel is probably the king of novelty watches with its 1960s Cocktail watch (Figure 13). The 25-jewel, self-winding watch features the mystery rotating kaleidoscope dial. This novelty watch is still made today.[4]

Spy movies brought us their share of novelty watches. Remember the watch James Coburn wore in the 1967 movie *In Like Flint*? It had a little lever that would extend and tickle the wrist, waking Flint from his deep meditations (Figure 14). And then we have the watches from the James Bond movies, notably those starring Roger Moore, Pierce Brosnan, and Daniel Craig. The watches could do everything from summoning help to cutting steel with a laser beam. Or they could just tell the time but in an eye-catching, cutting-edge (for the 1970s) way, like the digital Pulsar II in *Live and Let Die* (Figure 15).

The quartz era brought us more novelties that heralded future standard features: a calculator watch (Figure 16) and the Seiko miniature television watch (Figure 17). The Seiko TV watch was introduced in 1982 and with its 1.2" display was named the smallest television in the world by Guinness World Records.[5]

Today, we have watches that can monitor your pulse and blood pressure and display a recipe for coq au vin, complete with image. I remember 20 years ago when a fellow wristwatch historian wrote a short book on multipurpose watches. I asked him where he believed technology would go from there. He replied, "You ain't seen nothin' yet."

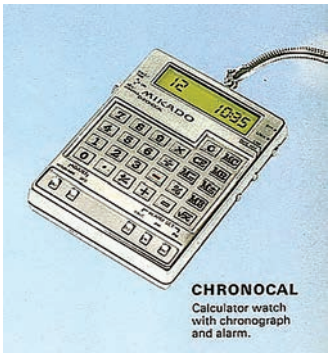


Figure 16. An ad for the Mikado Chronocal calculator watch with chronograph and alarm. AUTHOR'S IMAGE LIBRARY.

Figure 17. The 1982 Seiko television watch appeared on Roger Moore's wrist in the James Bond flick *Octopussy*. COURTESY OF THE COMPUTER MUSEUM AT SYSTEM SOURCE.

Notes and References

1. Lancaster Patent Watch Camera: Ladies Model, lot 341, May 2007, https://www.bonhams.com/auctions/14987/lot/341/.
2. See, for example, the intriguing story of CIA agent Martha Peterson, "For Your Eyes Only: The Secret Microphone Wristwatch Worn by Cold War Spies," March 10, 2017, https://wornandwound.com/eyes-secret-microphone-wristwatch-worn-cold-war-spies/.
3. Mido Bugatti, https://www.midowatches.com/us/mido-universe-collectors/mido-bugatti.html.
4. Cocktail Automatic Collection from Ernest Borel, https://www.ernestborel.ch/en/goods/17.html.
5. "The World's First TV Watch," Seiko Design 140, https://www.seiko-design.com/140th/en/topic/51.html.

About the Author

Bruce Shawkey has been an NAWCC member since 1988. His specialty is wristwatches, focusing on lesser-known (and more affordable) brands. He has written articles for various consumer magazines, in addition to the *Bulletin*, and maintains a blog at brucesworldofwatches.blogspot.com.

The Rise and Decline of England's Watchmaking Industry, 1550–1930

Book review by Russell Bartmes (IL)

Alun Davies provides a historical survey of English watchmaking, its flourishing and subsequent withering. As a former university department head, he brings a scholar's eye to the industry but claims no special expertise in horology.

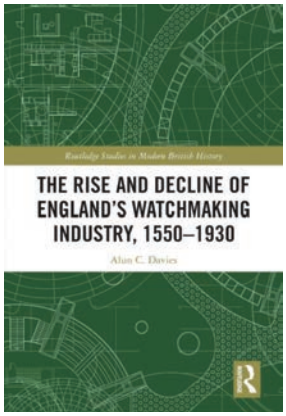
The watchmaking industry he presents is one that once dominated world production but failed to adapt to changes in both manufacture and market. In its infancy, watchmaking catered to the wealthiest, royalty and courtiers. With a growing population and prosperity in Britain, it evolved into a web of outworkers, suppliers, retailers, and watchmakers who fed increasing demand.

English watchmaking was a sophisticated pre-industrial undertaking. A schematic shown in Chapter 4 shows the complexities of the supply and craft needed to produce a finished product. Watches were the product of up to 24 individual trades before being hallmarked and sent to retailers for sale to the public.

Clerkenwell, Prescot (near Liverpool), Liverpool itself, and Coventry emerged as the focal points of watchmaking as the craft matured. Clockmaking, on the other hand, was more diffused, and hundreds of towns and villages had a resident clockmaker. Davies attributes this divergence to the greater complexity and skills demanded by watchmaking.

As watchmaking matured in England, it became globally dominant and produced more than half the watches made in the entire world. Watches created to appeal in foreign lands were produced along with the ones for Britain's market. This success bred competition, but the competition failed to breed innovation by the English. Its watchmaking remained a handcraft industry producing key-wound watches with fusees. A reluctance to embrace machine tools and to produce watches meeting market demand left the English industry struggling. The Swiss, the French, and later, the Americans innovated and began to capture the market. With the exception of marine chronometers, the English fell further and further behind. Later efforts to recapture former glory were too late and infrequent to succeed.

Mark Twain purportedly said history does not repeat itself but does rhyme. This book demonstrates that the English watchmaking industry faced headwinds like those we face now. Foreign competition, tariffs, smuggling, counterfeit goods, complacency, wars, and recessions all drove English watchmaking to near extinction. It is only beginning to revive today.



The Rise and Decline of England's Watchmaking Industry, 1550–1930
by Alun C. Davies, 2022, 414 pages, 21 b/w illustrations, 6"x 9", paperback (ISBN 9781032131351), hardback (ISBN 9781032131344), and ebook (ISBN 9781003227823). Published by Routledge, routledge.com.

This book is a must-read for any serious student of the English watchmaking industry. The prose is a straightforward narrative, and each chapter is accompanied by pages of footnotes, nearly as many pages as the text itself. An excellent bibliography is also provided.

Since this book is not aimed solely at those conversant in horology, a glossary of watchmaking terms would benefit many. Prices and values are presented in the older English currency denominations of pound, shilling, and pence, written in their proper abbreviations; many non-British readers will struggle without an explanation of British currency and some way to find equivalent values today. In all, however, I recommend you read this book if you are interested in English or watchmaking history.

2024 NAWCC National Convention

*By **Chris Martin,** NAWCC Star Fellow (GA), **Glen Kitts,** NAWCC Fellow (TN), **Sherry Kitts,** NAWCC Fellow (TN)*

The NAWCC held its 79th annual convention during the week of June 13 in the Scenic City—Chattanooga, TN—at the Chattanooga Convention Center. The Chattanooga Marriott served as the host hotel.

The 2024 National Convention was a resounding success! Attendees were treated to a pre-convention trip, the entertaining keynote by Bob Frishman, a field trip, 16 lectures and demonstrations, Chapter meetings, the Old Timers & Fellows luncheon, a live auction, an outstanding exhibit, a crafts competition, the banquet, and, of course, the mart. Two workshops were conducted concurrently as well.

High praise was heard from many regarding the ease and speed with which the mart load-in was completed by 9 a.m. on Friday morning, June 14. This was possible because of the mart's leadership and many dedicated volunteers. Registration went extremely smoothly without long waits. Once again, a tribute to the registration team's leadership, dedication, planning, and attention to detail.

Three local television stations offered interviews to help publicize the convention to the Chattanooga public. The strong public attendance demonstrates the effectiveness of local media in reaching the community and creating interest to see what the NAWCC is all about.

Keith Henley (right, in green cap) demonstrates bell ringing in the Breslin tower during the pre-convention excursion. PHOTO BY SHERRY KITTS.

2024 CONVENTION NUMBERS

Member Attendance: 820
Public Attendance: 112
Banquet Attendance: 178
Old Timers & Fellows Luncheon Attendance: 40
Live Auction Items: 105
Live Auction Attendance: 150–200
Lectures: 16
Mart Tables: 446

PRE-CONVENTION TRIP TO THE BRESLIN CLOCK TOWER

Keith Henley conducted a tour of the tower clock. Members climbed 67 steps to see the clock works, they heard a demonstration of the bell ringing, and then enjoyed lunch at the University of the South's cafeteria on Thursday, June 13. Twenty-five members enjoyed learning about the tower clock and its restoration.

FIELD TRIP TO THE COKER TIRE MUSEUM

Sherry Kitts led 15 members to the Coker Tire Museum, just a short, two-block walk from the convention center, for a private guided tour. Coker Tire has been providing tires for all things vintage for 60 years. They have been the go-to company for whitewalls that fit motorcycles, hot rods, and 1950s classics as well as muscle car tires. Attendees viewed the amazing collection of cars and motorcycles. They were also able to see some interesting clock installations.

EDUCATION: WORKSHOPS

- American-Style Time/Strike Clock Movement Workshop (Ken De Lucca): During this three-day NAWCC workshop, nine participants became proficient at disassembly and reassembly of the time/strike movements (at least five times!), proper synchronization of the strike train, and how to put it all together.
- Build a Watch (Jason Champion): This one-day event was sponsored by the American Watchmakers-Clockmakers Institute. Seven students assembled their own ETA 6497 movement that they lubricated, calibrated, and installed dial and hands. At the end of the day, they assembled it into a case and strap of their choice.

Some of the folks who made the registration process a breeze. PHOTOS BY CATHY GORTON AND JOHN COTE.

EDUCATION: LECTURES

- Keynote: Drive Time: The Story of Car Clocks (Bob Frishman)
- Interpreting and Using Snowden Taylor's Chart of Terry-Type 30-Hour Wooden Shelf Clock Movements (Patrick Hagans)
- Underground Chattanooga (Jennifer Crutchfield) at the Old Timers & Fellows luncheon
- Chronospedia (Konstantin Protassov)
- Engraved Watch Cocks and Bridges, 1550–1850 (Vin Cherico)
- Miniature Carriage Clocks (Doug Minty) at the Chapter 195 meeting
- Out of This World: Iron Nickel Meteorites and Their Use As Watch Dials (Edward Ripley)
- The Clocks of William Hickcox: Case Maker of Watertown, CT, and North Bridgewater, NY (Russ Oechsle) at the Chapter 194 meeting
- Life on the Road (Peter F. Planes II)
- Atmos Clock Repair (Paul Richmond)
- E. Howard 4-Dial Top Knot: The Art of Craftsmanship (Eric Ryback) at the Chapter 134 meeting
- Building the Horological Society of New York's Research Library (Dr. Miranda Marraccini)
- Watch Jewel Making in 19th-Century England (with an American Connection) (Dr. Ian Greaves) at the Chapter 159 meeting
- Radium Girls (Mary Jones)
- Basic Rules for Gilding on Glass (Lee Davis) at the Chapter 120 meeting
- Restoration of the Breslin Tower Clock (Keith Henley)
- Adventures in Watchmaking: Cleaning Larcum Kendall's K1 (Rory McEvoy) at the banquet

Adding to the excitement and anticipation at the lectures were the door prizes of a fully operational carriage clock at the "Miniature Carriage Clocks" lecture and a fully operational Atmos clock at the "Atmos Clock Repair" lecture.

Pat Hagans speaks at the Cog Counters Ch. 194 exhibit. PHOTO BY CATHY GORTON.

Many deals were made in the busy mart room! PHOTO BY LAURA TAYLOR.

A round of applause for Leroy Baker upon receiving one of the NAWCC Silver Star Fellow awards bestowed at the banquet. PHOTO BY SHERRY KITTS.

EXHIBIT: HOROLOGICAL SPECIALTIES

The following Specialty Chapters contributed to this outstanding exhibit:

- British Horology Chapter 159 (History of Watch Jeweling and Miniature Bracket and Library Clocks), including a hands-on demonstration of early watch jeweling
- Horological Art Chapter 120, including hands-on demonstrations of stencil borders on American shelf clock tablets
- Tower and Street Clock Chapter 134
- Cog Counters Chapter 194
- International Carriage Clock Chapter 195
- International Wristwatch Chapter 197

John Cote (left) talks wristwatches in the exhibit room. PHOTO BY CATHY GORTON.

Lynn Solomon works on a time/strike clock movement during the workshop of June 12–14. PHOTO BY RUTH-MARIE FINCHER.

Rich Newman introduces the Horological Specialties Exhibit. PHOTO BY CATHY GORTON.

Lee Davis shares his expertise in gilding on glass. PHOTO BY CATHY GORTON.

It was a packed room for Doug Minty's lecture on miniature carriage clocks. PHOTO BY RICH NEWMAN.

Doug Carson, lecturer Jennifer Crutchfield, Sherry Kitts, and Judy Draucker gather at the Old Timers and Fellows luncheon. PHOTO BY ALEX SIMPKINS.

VOLUNTEERS

It takes two to three years to plan a national convention. Although the exact number of volunteers who helped put on the 2024 national convention is unknown, 30 individuals chaired committees. You can easily multiply that number by three to see how many volunteers it takes! The NAWCC is blessed to have members who are willing to step up and help. General co-chairs Chris Martin, Glen Kitts, and Sherry Kitts cannot adequately express their enduring admiration and appreciation for these smart, capable volunteers who dedicated untold hours in planning and making sure the convention ran smoothly. Therefore, this list comes far short to acknowledge all the volunteers.

- Convention Co-Chairs – Chris Martin (GA), Glen Kitts (TN), Sherry Kitts (TN)
- Auction, Live – Jae Martin (GA)
- Auctioneers: Rick Robinson (VA), Brooks Coleman (GA)
- Auction, Silent – Keith Henley (TN)
- Audio Visual Support – Geoff Parker (TN), Bob Geier (TN), Alex Simpkins (PA)
- Awards – Bob Pritzker (CAN)
- Crafts Competition – Bill Slough (TX)
- Donations (Chapter and Individual) – Donna Kalinkiewicz (AL)
- Exhibit Co-Chairs – Philip Morris (AL), Rich Newman (IL)
- Food Functions – Renee Coulson (TN)
- Gift Shop – Evelyn Slough (TX)
- Lectures – Geoff Parker (TN)
- Mart – Donald Jackson (GA/AL)
- Meeting Scheduling & Support – Bob Geier (TN)
- Photography – John Cote (IN)
- Pre-Convention Trip – Keith Henley (TN)
- Project Manager – Peggy Goodwin (OH)
- Publicity – Fran Geier (TN), Sherry Kitts (TN)
- Registration (Pre- and On-site) – Russ Youngs (TN)
- Security – Anthony Manis (TN)
- Signs – Bruce Lewis (AL)
- Sponsors – Sarah Gallagher (PA)
- Treasurer – Melanie Bernhardt (OH)
- Volunteer Coordinator – Bob Burton (KY)
- Webmaster – Frank Wagner (AZ), Alex Simpkins (PA)
- Workshops – Ken De Lucca (PA), Jason Champion (OH), Lee Davis (PA)

SAVE THE DATE!
Next year's convention will be held in York, PA, on June 19-22, 2025. Details will be posted online (www.natcon.nawcc.org) and in publications.

CONVENTION SPONSORS

Jones & Horan Horological Auctions
Antique American Clocks
Cottone Auctions
Merritt's Clocks & Repair Supplies

CONVENTION DONORS

BANQUET GRAND PRIZES
Carrero Chronometer Watch—*donated by Geoff Parker*
Chronometer Watch—*donated by Brent L. Miller Jewelers*
Eco-Drive Corso Watch—*donated by Citizen*

CRAFTS COMPETITION PEOPLE'S CHOICE AWARD
Handblown Glass Trophy—*donated by Donegan Optical Co., in memory of Bill Donegan*

INDIVIDUALS—EMERALD *($10,000 AND ABOVE)*
Nancy Till—*donated six clocks to the auction in memory of her stepfather, Theodore "Ted" W. Stevens*

RUBY *($2,500-$4,999)*
Dan Horan/Schmitt Horan & Co.

INDIVIDUALS—RUBY (*$2,500-$4,999)*
Glen & Sherry Kitts

INDIVIDUALS—PLATINUM *($1,000-$2,499)*
Andy Dervan
Geoff Parker
Todd Porter
Russ & Geni Youngs

GOLD *($500-$999)*
Brent L. Miller Jewelers
Buckeye (OH) Ch. 23
Susquehanna (PA) Ch. 193

INDIVIDUALS—GOLD
($500-$999)
Samuel Cottone
Jim & Renee Coulson
Patricia Jones
Paul Richmond

SILVER *($200-$499)*
Carolina (NC) Ch. 17
Citizen Watch
Atlanta (GA) Ch. 24
Old Dominion (VA) Ch. 34
Kentucky Bluegrass Ch. 35
Tennessee Valley Ch. 42
Sunflower Clock Watchers (KS) Ch. 63
Jean Ribault (FL) Ch. 68
Lone Star (TX) Ch. 124
San Jacinto (TX) Ch. 139
International Carriage Clock Ch. 195

INDIVIDUALS—SILVER
($200-$499)
Bob Baldwin
Nick Bonura
Bob & Judy Burton
Jack Goldberg
Christine Griffen
Sam Hoyt
Richard Robinson
Michael Walsh
Ben Yellin

BRASS *(UP TO $199)*
Nicholas Aboufadel/USA Trade, Inc.
Steve Berger/Timesavers
New York Ch. 2
Chicagoland Ch. 3
Western New York Ch. 13
Colorado Ch. 21
Magnolia (MS) Ch. 41
Inland Empire (WA) Ch. 53
Alabama Ch. 54
Great Plains (NE) Ch. 58
Rocket City Regulators (AL) Ch. 61
Mt. Rainier (WA) Ch. 135
Central New Jersey Ch. 142
Connecticut Ch. 148
Watauga Valley (TN) Ch. 162
Madison (WI) Ch. 171

INDIVIDUALS—BRASS
(UP TO $199)
Robert Arnold
David Cooper
Christine Darrah
James T. Dutton
David Graley
Kenneth W. Gross
Robert Gunning
Susie Henley
John Huber
James Kadlubowski
W.C. Keech, Jr.
Raymond Kelly
Michael Lowe
Tom McIntyre
Chris Martin
Ralph Meldahi
Patti Philippon
Chrisoula St. Dennis
Tyler Jordan St. Gelais
William Thomas

THANK YOU TO ALL OF OUR SPONSORS, DONORS, MEMBERS, AND CHAPTERS!

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PHOTO BY LAURA TAYLOR

PHOTO BY JOHN COTE

PHOTO BY LAURA TAYLOR

PHOTO BY CATHY GORTON

PHOTO BY DON BUGH

2024 Crafts Competition

By William "Bill" Slough (TX)

The 2024 National Convention in Chattanooga, TN, was a great experience. Among the successes of the Convention was the beautiful display of entries in the Crafts Competition.

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 at the convention center. 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.

The Crafts Committee wishes to recognize the judges who gave their time at the Convention to help with the Competition. Thank you!

Entries were submitted for 12 out of 27 classes, offering a variety of items. The Crafts Committee thanks the contestants for their work and effort to bring their items to the Competition.

The entry form and rules for the 2025 National Crafts Competition will be published in the November/December 2024 issue of the *Bulletin* and will be available online at nawcc.org > About > Association Documents.

Bill Slough (right) presents the People's Choice Award to William McCoy at the Convention banquet.

LIST OF WINNERS

People's Choice Award—William McCoy

Class 1 Single-Train Clock Movements—Metal
1st Place: Ron Nollet
2nd Place: Ron Nollet

Class 2 Multiple-Train Movements—Metal
1st Place: William McCoy

Class 5 Experimental Timepiece Design
1st Place: William McCoy
2nd Place: Joseph Croft
3rd Place: C. Stuart Kelly

Class 6 Wood Clock Case—Solid or Veneered
1st Place: Ron Nollet
2nd Place: Ron Nollet
3rd Place: Joseph Croft

Class 7 Other Material Clock Cases
1st Place: Ron Nollet

Class 8 Watch Movements
1st Place: Geoff Parker
2nd Place: Geoff Parker

Class 10 Watch Restoration
1st Place: David Cooper

Class 12 Clock Restoration
1st Place: Michael Schlotterbeck

Class 14 Reverse Painting on Glass
1st Place: Lee Davis

Class 15 Reverse Painting on Glass—Litho-Transfer
1st Place: Lee Davis

Class 18 Gold Leafing
1st Place: Lee Davis

Class 24 Horological Novelties
1st Place: Michael Schlotterbeck
2nd Place: Geoff Parker

Junior Class 24 Horological Novelties
1st Place: Archer Whitman-Pope

2024 PEOPLE'S CHOICE AWARD WINNER: WILLIAM McCOY ▲

ALSO VOTED 1ST PLACE: CLASS 2 MULTIPLE-TRAIN MOVEMENTS—METAL
1ST PLACE: CLASS 5 EXPERIMENTAL TIMEPIECE DESIGN

The *Coup Perdu* Skeleton Clock is a dual fusee skeleton-style clock with time-and-strike trains. The time train incorporates maintaining power. The strike train uses a conventional rack-and-snail design to strike the full hours on a brass bell.

My goal when designing this clock was to maximize the skeletonization of the plates for the *Coup Perdu* ("lost beat") escapement to be easily visible.

The *Coup Perdu* is a deadbeat escapement remarkably similar in operation to a pinwheel deadbeat, but it does not allow the escape wheel to provide impulse to both the entry and exit pallet faces. Instead, the moving/tilting entry pallet forces the escape wheel pin to slide onto the exit pallet where it can then drop off, providing pendulum impulse. This allows the clock's center-sweep seconds hand to display normal seconds. No CNC machine or laser cutting was used in this clock's production.

CLASS 1 SINGLE-TRAIN CLOCK MOVEMENTS–METAL

1ST PLACE: RON NOLLET ▼
ALSO VOTED 1ST PLACE: CLASS 6 WOOD CLOCK CASE—SOLID OR VENEERED

Four-Dial Mystery Clock:

- Movement
  - o Steel-filled plastic balls for hands
  - o Hidden magnets on balanced arms
  - o Two skeleton brass plates
  - o All pivots are sealed ball bearings.
  - o Lantern pinions throughout
  - o Deadbeat escapement with adjustable pallets
  - o Two 25 lb. lead weights with transport cable lock
  - o 17-day duration
  - o Maintaining power during winding
- Pendulum
  - o Compound seconds pendulum
  - o Rate adjustment is via a threaded rod on the counterweight.
  - o Knife suspension
  - o Pendulum clamps for transport
- Solid black walnut case with satin lacquer finish, with a cherry dial mount with black finish and magnetic door close

2ND PLACE: RON NOLLET ▼
ALSO VOTED 2ND PLACE: CLASS 6 WOOD CLOCK CASE—SOLID OR VENEERED
1ST PLACE: CLASS 7 OTHER MATERIAL CLOCK CASES

Conical Pendulum Clock:

- Movement
  - o Two brass plates with two subplates
  - o All pivots are sealed ball bearings, except the vertical pinion.
  - o Lantern pinions throughout
  - o 300-tooth contrate wheel with 10-pin vertical lantern pinion
  - o Counter-balanced minutes and second hands!
  - o Weight is 30 lb. composed of six individual cast lead sections
  - o Winding jack with 4:1 reduction to reduce winding torque
  - o 8-day duration
- Pendulum
  - o Conical compound pendulum with two-second period
  - o Pendulum pivots on a 4-ball bearing universal joint
  - o Rate adjustment is via a threaded rod on the counterweight.
- Brass case on top
- Solid black walnut case with red mahogany stain and satin lacquer finish, with polycarbonate clear panels and magnetic door close

CLASS 5 EXPERIMENTAL TIMEPIECE DESIGN

2ND PLACE: JOSEPH CROFT ►
ALSO VOTED 3RD PLACE: CLASS 6 WOOD CLOCK CASE—SOLID OR VENEERED

This clock, the Nixie Star, merged my two loves: clocks and electronics. It was designed by me in its entirety. This includes designing the case, all the electronics, PC boards, and the software. The clock was hand assembled and finished by me. My wife, Barbara, hand-painted the face.

My goal when I created the Nixie Star was to make a truly elegant clock that would grace any wall with the warm colors of wood and neon blended into an intricate geometrical pattern as well as having a lovely face.

The tubes that make the hands are like a simple neon lamp. They work by ionizing the neon gas within the tube, which makes it glow. The length of the glowing section of the tube is controllable to allow me to create an hour and minute hand effect with a single tube. These tubes originated in the 1950s and 1960s though they were made up until the early 1990s. The tubes used in the Nixie Star are "new old stock" that were made in the Soviet Union in the 1990s.

3RD PLACE: C. STUART KELLY ▼

These Sky Clocks are made of PVC fittings, wood for the handles, and hidden brass nails to secure the polarizing ring.

OPERATING PRINCIPLE: Microscopic dipoles in the atmosphere convert unpolarized light from the sun into polarized light when seen from a certain angle. The resulting polarization is at right angles to the plane formed by the sun, the observer, and the direction the observer is looking. At dawn and looking north, the observer will see light that is polarized vertically. If the observer looks in the same direction at solar noon, the polarization has rotated to horizontal. This rotation of the polarization through the day is the basis of the Sky Clocks.

SIMPLIFIED SKY CLOCK: The Simplified Sky Clock consists of a main tube with two larger rings mounted on its outside at the end opposite the eyepiece. The time ring is fixed to the main tube and is marked with the hours of the day. The second ring, the polarizing ring, with a single mark on its exterior, rotates on the main tube. Inside the polarizing ring are two semicircular transparent sheets of polarizing film secured to each other to form a circle. The polarizations of the two sheets are at right angles to each other. This Sky Clock gives solar time, not watch time.

SKY CLOCK: The Sky Clock consists of the same elements as in the Simplified Sky Clock, but with two additional rings. One ring corrects for the separation of the operator's longitude on the Earth's surface from that of the meridian of the operator's time zone. The second ring corrects for the Equation of Time that converts solar time to watch time for the month in which the Sky Clock is used. This Sky Clock gives watch time.

OPERATION OF THE TWO SKY CLOCKS: On Earth's northern hemisphere, the operator stands facing north. (If the operator is on the Earth's southern hemisphere, the operator faces south.) The operator looks through the eyepiece and tilts the Sky Clock upwards until the bottom of the main tube's rear end cap is horizontal with the operator's latitude mark on the handle. Then the operator rotates the polarizing ring until the two semicircular polarizing sheets appear equally bright, and secures the screw on the polarizing ring, locking the polarizing ring to the main tube. If the operator is using the Simplified Sky Clock, the operator reads the time by the position of the mark on the polarizing ring that is now aligned with the time indicated on the time ring.

If the operator is using the Sky Clock, the operator uses it like the Simplified Sky Clock, then aligns the front of the appropriate month mark on the Equation of Time ring with the rear of the mark on the polarizing ring. Then the operator aligns the front of the appropriate reading of the operator's displacement in longitude (positive or negative) from the median longitude of the operator's time zone with the rear of the month mark. Then the operator reads the time from where the rear of the large mark on the longitude ring intersects the time ring.

Sky polarization rotates from vertical at dawn to horizontal at noon and then to vertical at sunset, so Sky Clocks give the same reading at times equally before and after noon. The operator must discern whether the reading is taken in the a.m. or p.m.

CLASS 8 WATCH MOVEMENTS

1ST PLACE: GEOFF PARKER ▼

Skeleton movement and skeleton dial gold watch:

- Custom Unitas 6497 clone movement with blued screws and engraving
- Custom lumed hands
- Custom skeleton dial with lumed Arabic numbers
- Water-resistant Pilot case with Pilot crown and exhibition back
- Sapphire crystals
- Patent leather strap with deployment buckle

I have built many skeleton watches, and I built this one to add a dial and hands with lume so I could see it at night in the dark.

2ND PLACE: GEOFF PARKER ►

I designed and built this watch from scratch:

- 42 mm waterproof case with ceramic bezel
- Built to resemble an Omega Planet Ocean
- Custom broad arrow hands with orange lume (glows blue)
- Barton leather rally strap
- Modified and customized ETA 2824-2 movement

CLASS 10 WATCH RESTORATION

1ST PLACE: DAVID COOPER ▼

This is an unusual alarm watch ca. 1780s marked "Markwick London 45."

It is an interesting piece with an unusual alarm that was quite nicely made and had a leather silver-decorated outer case, as there are not any wear marks on the pendant at all but some slight wear marks are seen around the case. There is no record of Markham in the English records. His first name is under the foot of the watch cock. The winding holes in the back of the case are French, and the number 45 is quite suspect. To see any movement number on any watch of this period is quite unusual, as they were being made one at time.

The escapement required hours of work to make. It required, among several other things, an extremely critical depthing of the contrate wheel, a complete reforming of the hairspring, centering the crown wheel to the staff, and so on.

I made the fixture for repivoting the balance wheel; none of the parts of the balance are on center, a combination of various corrections made one upon another, a very delicate and time-consuming work. The balance came out exactly on the same plane as the backplate. On top of it all, I had to make a new setting for the balance pivot in the watch cock, as the existing one was just a hole, all of which required the appropriate adjusting.

On close examination, the winding arbor for the alarm is so close to the balance that a thick winding key would run into the balance and that was how the staff was broken. I drilled a hole in the arbor and fitted a small taper pin that stops the key short of the balance. I also made a square key for setting the alarm time.

As for the alarm wheel, one screw was missing and the other stripped out, requiring the alarm plate to be drilled out and threaded tubes to be carefully secured into the alarm plate. In addition, the screws had to be fitted exactly flush with the alarm dial to avoid catching the hour hand.

About 18 hours later there is a nice, running period piece. I still have to make a leather or wood outer case for it.

CLASS 12 CLOCK RESTORATION

1ST PLACE: MICHAEL SCHLOTTERBECK ▼
ALSO VOTED 1ST PLACE: CLASS 24 HOROLOGICAL NOVELTIES

This was a restoration of a 1927 4 1/2" dial Chelsea automatic ship's bell OUTFIT, serial number 179611. Chelsea decided to mount and prewire the "Master" clock and external ship's bell onto a solid mahogany baseboard. It demonstrated how the OUTFIT could be wired aboard a ship and allowed the captain and crew to become familiar with the operation of the clock and bell, while serving as a more convenient way to package and ship the assembled components. Chelsea went so far as to credit the purchaser the cost of the baseboard if it was returned to Chelsea after installation was completed. During refinishing of the baseboard, the artifact impression was protected and is safely preserved behind the 4 1/2" Chelsea "Master" clock.

CLASS 14 REVERSE PAINTING ON GLASS

1ST PLACE : LEE DAVIS ▼

CLASS 15 REVERSE PAINTING ON GLASS–LITHO-TRANSFER

1ST PLACE : LEE DAVIS ▼

CLASS 18 GOLD LEAFING

1ST PLACE : LEE DAVIS ▼

CLASS 24 HOROLOGICAL NOVELTIES

2ND PLACE:
GEOFF PARKER ►

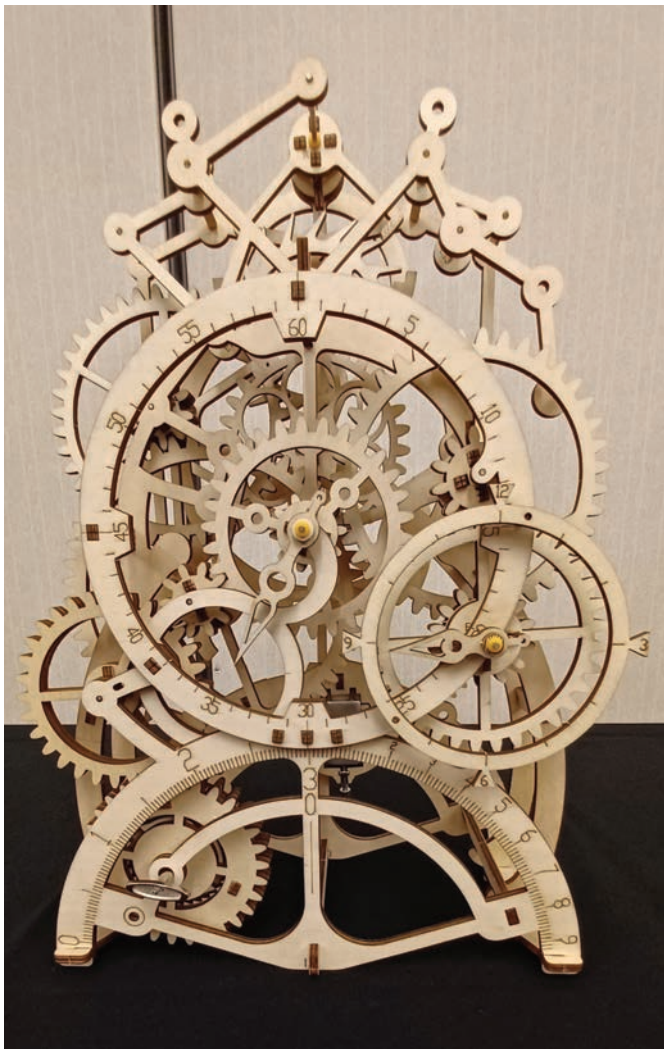
This was a kit watch that I built based on a Seagull 3500 tourbillon movement, customized case, customized strap, dial, and hands. It is the first and only tourbillon watch kit I have seen, and I assembled it for the experience and to assess quality and functionality. The accuracy remains under power at 1 to 2 seconds per day.

JUNIOR CLASS 24 HOROLOGICAL NOVELTIES

1ST PLACE: ARCHER WHITMAN-POPE ►

This is a wooden ROKR kit vintage pendulum clock.

Archer is 13 years old and begins the eighth grade this fall at McCallie School in Chattanooga. His academic interests include math, computer and robotic science and mechanics, and Mandarin Chinese. Although he has built several mechanical working kits, including his own personal computer, this was his first attempt to build a working clock. He viewed the whole experience as challenging and enlightening, particularly in working out the precise placement of the parts and gears. He said the most satisfying moment came when he started the pendulum and realized the clock worked. This experience has led him to see how the study of horology can broaden the study of his other science interests. He said he really enjoyed the Convention and would like to attend next year.



Chapter Highlights

Total Membership on June 30, 2024: 8,306 • First Accession Number on July 10, 2024: 188461

Chapter reports must be received by the end of the working day (5 p.m. Eastern) on the following date to appear in the next published issue: Tuesday, September 10 for the November/December 2024 issue. Submission guidelines are available at nawcc.org/publications/chapter-highlights-submission/. Send reports to chaphi@nawcc.org. For reporting questions, email chaphi@nawcc.org or call 717-684-8261, ext. 207.

CALIFORNIA

52. LOS PADRES
LOCATION: South County Senior Center, 1580 Railroad St., Oceano, CA 93445
WHEN: 1:30 p.m. the second Sunday of each month
MEMBERSHIP INFORMATION: Ray Hallenbeck
EMAIL: bcmc26129@yahoo.com
WEBSITE: new.nawcc.org/index.php/chapter-52-los-padres

JUNE MEETING: Tom called the June meeting to order at 1:35. In attendance were 13 members and one guest (welcome, Lloyd). Bert gave the club a status of its current funds and no old business was discussed.

SHOW AND TELL: This month's theme was mantel and small wall clocks. Bert showed his Gustav Becker mantel clock, which features some oddities that he has documented and which will be discussed at length in an article that he wrote for the *Bulletin*. Virginia brought a small Seth Thomas clock that is wound and set from the rear that she thinks she acquired "probably free." Ed Serge brought four small bedside clocks to show. Among them was a 60s Lux travel clock and a nice brass-cased time-only Herschede clock.

Tom brought a very nice fusee skeleton clock that he bought from Ed 15 to 20 years ago. Ed spoke about the clock that he had purchased in Edinburgh on one of his clock- and antique-seeking adventures. Ed said it would run 6 to 8 days when fully wound and has a trip bell function that dings once on the hour. He said that a clockmaker in the 1850s would make a skeleton clock as a project, and upon making one that actually worked well would then become a master clockmaker.

Ray brought an old miniature clock that looks like a small mantel clock and sought information on its possible maker. David brought an old Vibrograph timing machine he purchased years ago. He showed its functions and explained how it works.

Ed was the lucky winner of the raffle this month and donated his winnings back to the club. *—Ray Hallenbeck*

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71. SACRAMENTO VALLEY
LOCATION: Shepard Garden and Arts Center, 3300 McKinley Blvd., Sacramento, CA 95816
WHEN: Fourth Sunday of January, March, May, July, September, and November unless otherwise stated.
MEMBERSHIP INFORMATION: Chris Johnson, 530-433-0084
EMAIL: mysterydriver@sbcglobal.net
WEBSITE: new.nawcc.org/index.php/chapter-71-sacramento

MAY MEETING: Lately, our meetings have been very successful, and May was no exception. This is due to the exceptional outreach efforts by Secretary Chris Johnson. We had 31 members in attendance and one new member, Bob Hensley. After a brisk mart, the meeting was called to order by Vince Angell at 10:35.

Vince mentioned the success of the May clock convention in Clackamas, WA. Tables were all sold two days prior to the convention. He then mentioned

an upcoming convention in La Mesa, CA, on January 23–25, 2025. Vince introduced new member Linton von Beroldingen, who told the audience that he collected early watches and nice clocks. Vince also showed the group a wonderful article written by Bob Peischl that appeared in the recent Alarm Clock Chapter newsletter.

Vice President Ken Rothaus then showed a brief video of the BBC's *Antiques Roadshow* from the Belmont House in Kent. The short clip showed an array of clocks shown by expert Jonathan Betts, who comes from a family of retail watchmakers and jewelers.

BRING AND BRAG: New member James Bohon showed the group his Mastercraft Fireplace clock. Ken Rothaus brought a nice selection of interesting clocks: a pyramid clock, a ladybug on grasshopper clock, two Jefferson electric clocks, a 1970s gravity wall clock, and a reproduction gravity clock that rolls down a ramp.

Vince Angell brought three unique match light clocks, an 1870s Davies, a Seth Thomas burglar alarm clock circa 1874, and another Davies match-light from the 1870s. Bob Peischl brought a wonderful Memorial Day plaque. Stephen Hibbs first read the inscription on Bob's plaque and then showed a beautifully restored 1923 Herschede Westminster chime clock he purchased on eBay. He demonstrated three products used to clean the case.

Ron Hoops showed two novelty windmill clocks. One he found at a garage sale missing the windmill blades and the other he bought on eBay that had the windmill blades. He made blades for the first clock by using details from the second. Chris Johnson brought a unique wall clock with a Japanese movement, a one-hand clock for which his son made a new dial, and three rolling-eye clocks from the 1950s.

We continue to come up with ideas to grow our Chapter with our successful and informative bring and brag programs and, as mentioned above, the great outreach to NAWCC members in our area. As a new feature of these Chapter Highlights, we have included a link to pictures from the meeting. You can see them at photos.app.goo.gl/kMcqzzPs6jKaysR96. —*Phyllis Angell*

Chapter 71 saw three matchlight clocks whose alarm strikes a match to light the "oil" lamp and light the room.

FLORIDA

19. FLORIDA SUNTIME
LOCATION: SpringHill Suites, 511 W. Lime St., Lakeland, FL 33815
WHEN: Second Sunday of odd-numbered months
MEMBERSHIP INFORMATION: Stephen Gold
EMAIL: sgold8@aol.com
WEBSITE: new.nawcc.org/index.php/chapter-19-florida-suntime

MAY MEETING: Twenty-five members and guests were present and 12 tables were set up for the 9 a.m. mart. Sales were brisk with a wide variety of clocks, watches, and assorted materials for sale. A silent auction was held and saw a lot of activity. Coffee and donuts were offered at 9:30.

PROGRAM: President Stephen Gold introduced Ken Pell and his presentation, "Watchmaking and the Railroad Industry — circa 1850-1900." Ken gave a very interesting talk on how the growth of the railroad impacted US watchmaking's growth and development. Before the railroad, there was no concern about estimated time of arrival since stagecoach crashes weren't a major problem. Between 1850 and 1890, the number of rail miles increased from 9,000 to 164,000 as the system expanded across the country.

Chapter 19's May mart was a busy one, as this table attests.

Larry Orr and Patrick O'Quinn demonstrated dial removal on this 18-size pocket watch at Chapter 96's June meeting.

Since two trains shared the same track, it was critical that they maintain exact schedules to avoid crashes. With the expansion of the railroads came the need for more and better pocket watches for railroad engineers and other personnel as uniformity and accuracy became critical. The European cottage industry model they were using for production of watches was not efficient. Crashes continued, including a major collision in Kipton, OH, which resulted in railroad officials appointing Webb C. Ball as Chief Time Inspector to establish precision standards and an inspection system for railroad watches. Ball established strict guidelines for the manufacturing of sturdy, reliable, precision timepieces, including resistance to magnetism, reliability of timekeeping in five positions, isochronism, power reserve, and dial arrangement, along with recordkeeping of the reliability of the watch on each regular inspection. The two major watch companies at the time were Elgin and Waltham. Waltham developed an assembly line process to standardize parts with machinery, which resulted in faster output with greater efficiency and accuracy.

This made watches that were more accurate, had dials that were easier to read at a glance, kept consistent time as they wound down, and were more affordable. Service was easier to obtain and loaner watches were available when watches were being serviced and inspected.

Ken showed examples of watches as they improved and used his teaching skills to make the presentation an easy to understand and entertaining session.

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96. FLORIDA WHITE SANDS
LOCATION: Shalimar Town Hall, 2 Cherokee Rd., Shalimar, FL 32579
WHEN: 2 p.m. on the third Sunday of even-numbered months
MEMBERSHIP INFORMATION: Gary Combs
EMAIL: combsclockrepair@gmail.com
WEBSITE: new.nawcc.org/index.php/chapter-96-florida-white-sands

JUNE MEETING: Six members got together for the June meeting. Chapter meetings always include a horological topic and this meeting's topic was the removal of a dial on an 18-size pocket watch. Larry Orr and Patrick O'Quinn actually removed dial on the pictured watch and replaced it during the presentation. Refreshments were provided, and Patrick O'Quinn won the door prize, a Shatz ship clock. All meetings include refreshments and at least one door prize. For more information, contact Gary Combs at 850-217-5180 or combsclockrepair@gmail.com. —*Gary Combs*

GEORGIA

24. ATLANTA
LOCATION: Mountain Park Aquatic Center (Activity Building), 1063 Rockbridge Rd., Stone Mountain, GA 30087
WHEN: 9:30 a.m.–1 p.m. the first Sunday of even-numbered months
MEMBERSHIP INFORMATION: Jeff Whitfield
EMAIL: Jeffery_whitfield1@hotmail.com
WEBSITE: http://rgrunwell.hopto.org/NAWCC/NAWCC.htm

JUNE MEETING: Thirty-four members were in attendance with three attending virtually, along with two guests. Jeff Whitfield kicked off the business meeting by welcoming the membership, and Gary Walton provided the treasurer's report. Sherry Kitts discussed the progress of registration and sales for the 2024 National in Chattanooga. She also discussed the many lectures that will be given, including the keynote by Bob Frishman on timepieces in classic automobiles.

PROGRAM: Vice President Kelly Sims introduced our guest speaker. Bob Frishman presented "Horology in Art" virtually from his home in Andover, MA. Bob began by describing his work, followed by an office tour and overview of his historic hometown of Andover. Andover is about 50 miles north of Boston and was founded in 1646. Bob presented one slide of the painted dial of a tallclock made in Andover by Nathan Adams in 1792. The scope of this program, however, encompasses fine art from every period, including timepieces intended to convey a symbolic message. The art integral to timepieces, such as reverse painting on clock glasses, clock dials, or fine engraving on watches, while often exquisite, falls outside the scope of this program.

Bob's presentation spanned from the ancient Greeks through to art that appeared with the advent of mechanical timepieces during the Renaissance around 1300. Also included are Dutch Golden Age paintings (Rembrandt and Steen), American Revolution (Revere), American folk art (Peckham), French impressionism (Matisse), Van Gogh, Picasso, Dali's melting clocks, and many more. Bob also presented examples of early photography (Mathew Brady) and included one photograph where a timepiece was captured timing film exposures.

During Chapter 24's February meeting, "Japanese Horology" was presented by Bob. In that program, art in Japanese horology was introduced multiple times, and slides of wood block prints depicting scenes with Japanese lantern clocks piqued Atlanta's interest in this program.

You can watch the whole program here: https://youtu.be/WeskMk6dwyQ.

The work that initiated Bob's entrance into the collection of horological art about 20 years ago, *The Emperor Napoleon in his Study at the Tuileries* (1812) by Jacques-Louis David, is a portrait commissioned by a Scottish nobleman who likely favored the French emperor over the English. This painting now resides in the National Gallery in Washington, DC. A French weight clock with a gridiron pendulum by Antide Jahvier, the clockmaker to Louis XVI, indicates 04:12 a.m. behind the subject as the desk candle is almost burnt down, conveying the status and work ethic of this leader.

There was so much more to this program than could fit here, and it really warrants a full viewing. The Atlanta membership very much appreciates Bob's commitment and willingness to share his horological interests.
—Bob Geier

IOWA

29. IOWA-ILLINOIS
LOCATION: Gwen's Restaurant, 119 W. Main St., Lisbon, IA 52253
WHEN: TBD
MEMBERSHIP INFORMATION: Mark Butterworth
EMAIL: butterworth1725@gmail.com

MAY MEETING: Chapter 29's first meeting of the year had 18 attendees. The theme was No Springs Allowed. Participants were encouraged to bring watches, clocks, or timers that work without springs. However, as always, your latest acquisition or restoration project is always welcome, too, as well as updates on NAWCC Regionals and auctions.

Marilyn Swanson filled two mart tables with assorted glass domes at Chapter 29's mart—just some of the many domes in her collection.

Several weight-driven clocks were brought to the meeting. Both Patrick Kernan and Gary Wolber brought mantel clocks from the late 1800s. Patrick's clock included a nice label and could easily be identified as a Seth Thomas with a nice original screened glass with an 8-day movement. Gary's was a bit taller and stockier with gilded half columns: a three-tier Empire-style pillar clock with an 8-day lyre-shaped movement. Sadly, this clock lacked any identifying marks on the dial, movement, or case. Its wavy glass had also been cleaned of any stencils or reverse painting. Gary said that it looked very similar to several 1850s Seth Thomas clocks listed on eBay.

Marilyn Swanson filled two mart tables with a wide variety of glass domes. She also had a music box with a woman seated behind a harp whose arms move as she plays. Chuck Cline brought an assortment of clock parts and projects for sale, and Mark Butterworth had several clocks as well as a round French time-and-strike movement for sale.

PROGRAM: Don Hagist presented "Time and Timekeeping in the British Army of the American Revolution" from the 2021 Ward Francillon Symposium. A delicious buffet served by Gwen and her staff concluded the formal part of the meeting. We always welcome members from other Chapters or any NAWCC members. —*Gary Wolber*

Chapter 63 President Mark Will presented the March program on Westclox with examples from his collection.

KANSAS

63. SUNFLOWER CLOCK WATCHERS
LOCATION: Woodland United Methodist Church, 1100 W. 15th St. N., Wichita, KS 67203
WHEN: 7 p.m. the first Friday of each month
MEMBERSHIP INFORMATION: Stev Overstreet
EMAIL: stev.overstreet@cox.net
WEBSITE: http://nawcc63.org/Membership.aspx

JUNE MEETING: Stev Overstreet shared that he's looking for a weight, pendulum, and minute hand for an 8-day Zaandam clock.

SHOW AND TELL: Fred Altwegg shared an oak kitchen clock that he had restored the top on by removing a bow in the top wood. Mark Will shared a picture of a June 1981 newspaper article reporting on the lightning-caused fire in the clock tower of the Wichita-Sedgwick County Historical Museum (the old Wichita City Hall) that severely damaged the Seth Thomas clock movement. —*Stev Overstreet*

KENTUCKY

35. KENTUCKY BLUEGRASS
LOCATION: Kyana Building, 3821 Hunsinger Ln., Louisville, KY 40220
WHEN: October 19
MEMBERSHIP INFORMATION: Tom Hartwein, Eric Michalsen
EMAIL: thartwein@twc.com or eric.michalsen@gmail.com

Tom Hartwein demonstrates pivot polishing techniques for Chapter 35.

MAY MEETING: It was a well-attended watch and clock mart at the Chapter 35 meeting. It was noted that attendance at meetings is growing. After a short business discussion, members and guests enjoyed Tom Hartwein's program on pivot polishing. The mart featured a good balance of clocks and watches for sale. Several attendees brought clocks for repair advice and assistance. A lunch of fried chicken and roast pork sandwiches with all the fixings was enjoyed by all.

Announcements included details for the summer's barbeque and the fall's Clocktoberfest. Talk about each event promised great meetings and marts, and enthusiasm for both meetings could be heard from all.

GROWING YOUR CHAPTER TIP: Birds of a feather flock together. To reach the interested public (potential new members), information about upcoming events needs to be heard. Look for every possible way to advertise and announce what, where, and when you are gathering. —*Frank Webster*

Randall Kent wins the Chapter 196 raffle.

196. SOUTH CENTRAL KENTUCKY
LOCATION: The Old Alvaton Gym, 6350 Old Scottsville Rd., Alvaton, KY 42122
WHEN: October 19, December 7
MEMBERSHIP INFORMATION: Tim Miller
EMAIL: chapter196@nawcc.org

JUNE MEETING: We are proud to announce that our first Chapter 196 June event was a great success. Many compliments to everyone who attended. We would like to give a special thanks to Jim Durbin and Frank Webster.

Jim demonstrated the skill of brazing and silver soldering. Frank gave our attendees a good start for how to search and post on the NAWCC forums.

Randall Kent was the proud winner of two beautiful German wall clocks. Our treasurer, Buddy Jent, had a great day selling and will most likely need an armored truck to haul away all his proceeds.

We would like to thank all the volunteers that made this event possible. —*Tim Miller*

Chapter 43's Gordon Nutik and Scot Goodstal reassembling the Morbier clock movement from the Destrehan Plantation.

LOUISIANA

43. CREOLE
LOCATION: North Kenner Public Library, 630 West Esplanade Ave., Kenner, LA 70065
WHEN: 9–11:30 a.m. the second Saturday of odd-numbered months
MEMBERSHIP INFORMATION: Dave Bertinot
EMAIL: dave@bertinot.com
WEBSITE: https://chapter43.nawcc.org

MARCH MEETING: Creole Chapter 43 had a gathering of 18 members. The mart mostly consisted of clocks for sale. The hospitality was a tasty selection of homemade cinnamon buns made by Sandy Cranfill, deviled eggs made by Dave Bertinot, as well as donuts.

Steve Barnes called the meeting to order. The Destrehan Plantation Morbier clock is our ongoing project. Terry Downs cleaned the clock parts and inspected them for defects. She pointed out one tooth that showed wear. We decided to leave it as is. Steve Barnes cleaned and painted the case with flat black paint. Gorden Nutik volunteered to assemble the movement. Scot Goodstal assisted him. Gorden did a great job explaining the functions of each part as he installed them. There was lively discussion about Morbier clock history. Dave Bertinot took the assembled movement home to test it.

Steve Barnes brought a kitchen clock that was made and labeled for New Orleans.

There was more discussion about the upcoming Southern Regional in October back at the original location Copland Towers in Metaire. —*Terry Downs*

MARYLAND

11. MARYLAND
LOCATION: Pickersgill Retirement Community, 615 Chestnut Ave., Towson, MD 21204
WHEN: 9 a.m. mart, 10 a.m. meeting and program on the second Sunday of even-numbered months
MEMBERSHIP INFORMATION: William Miller
EMAIL: bill1815clocks@gmail.com
WEBSITE: https://new.nawcc.org/index.php/chapter-11-maryland

JUNE MEETING: The meeting was held in the Willard Room with 14 members and guests enjoying Dunkin coffee and donuts before and during the meeting. Prior to the meeting, there was a small mart.

Tom Mostyn showed a small banjo clock that he had purchased on eBay. The 16" Waterbury 8-day T/O clock had a ship's wheel bezel and was made around 1930. The clock was wound by rotating the bezel, and the time set by means of a lever in the back of the case, similar to a watch. A most unusual clock.

Jim Manning brought a French bracket clock by Robert Robin, Paris, circa 1850, which he said was for sale. The 8-day T/S clock was 18" tall and featured a Rococo-style ebonized case, inlayed with brass. The clock was signed "Robin au Paris" on the enameled dial and on the movement.

President Frank Blahut called the meeting to order. The first order of business was the election of officers for 2025. However, since there were no volunteers, the current officers will remain in place.

Our scheduled program, two DVDs from the museum library, *Tooth and Teeth Replacement* and *Clock Rebushing*, was cancelled due to technical difficulties. Fortunately, a backup DVD on 400-day clocks was available. *—Bill Miller*

MASSACHUSETTS

8. NEW ENGLAND
LOCATION: Varies
WHEN: February, April (New England Regional), May (Annual Willard House & Museum Workshop), August, and October.
MEMBERSHIP INFORMATION: Steve Chatlas, 860-828-1743
EMAIL: sgchatlas@aol.com
WEBSITE: https://nawcc8.org

MAY MEETING: Chapter 8 held its annual Willard House Workshop and Luncheon at the Willard House & Clock Museum in North Grafton, MA.

Despite some rain we had a great meeting with about 50 registrations mostly from Chapter 8, but a few members from other New England Chapters as well.

Our first speaker in the barn was Chris Carey. Chris discussed changing a friction balance staff in a Waltham Model 1899/1908, a model he has been talking about with us for several years. In the process of replacing the balance staff, Chris also discussed truing the balance with truing calipers, adjusting the end-shake, using the pivot lathe, handling the hairspring, and putting the watch in beat. Chris is the owner of Waltham Watch and Clock and a former president of Chapter 8.

Our second speaker was Rich Pompeo. Rich discussed Henry Abbott and his invention, the Calculagraph. The machine conquered the need for keeping track and printing elapsed time easily and accurately for business purposes. Abbott's most prominent customer was American Telephone & Telegraph, who used the machines to keep track of the elapsed time of long-distance phone calls. Rich owns and brought in to show an 1888 Calculagraph built by Abbott and several other transitional models as well. Rich is the owner of Pompeo

Chris Cares discusses changing a friction balance staff in a Waltham Model 1899/1908 with members of Chapter 8.

Auctions in Fitzwilliam, NH, and is the current president of Chapter 8.

After a box lunch under the tent, Robert Cheney, executive director of the Willard House and Star Fellow of the NAWCC, gave a slide presentation and discussion of the recently announced gift to the Willard of the Charles N. Grichar Collection of Horology. The gift is valued at approximately $16,000,000, about half in horology: the finest collection of Willard clocks and timepieces and E. Howard & Co. astronomical regulators known. The remaining half will create an endowment to build a proper building to show the collection and fund its care. The donation also includes about 300 gold pocket watches and 125 fine wristwatches.

After Robert's presentation, the attendees were invited inside the Willard Museum for a private tour.
—Gary Ewing

MICHIGAN

101. WESTERN MICHIGAN
LOCATION: St. Paul's Anglican Catholic Church, 2560 Lake Michigan Dr. NW, Grand Rapids, MI 49504
WHEN: First Saturday of even-numbered months
MEMBERSHIP INFORMATION: Richard Weiderman
EMAIL: pjkurta@gmail.com
WEBSITE: www.westmichigan101.com

JUNE MEETING: Twenty-six members and guests of Chapter 101 gathered on June 1. On offer at the mart were

Bill Thomas with a selection of watch material catalogs for his presentation to Chapter 20.

Dr. Fred Ingram presents to Chapter 41 on the evolution of time measurement.

two American crystal regulators; a 1930s electric kitchen wall clock; a Kundo square-dial, 400-day clock on an unusual black plastic base; a black mantel clock lacking a bezel; three oak mechanical kitchen clocks; two small, painted 30-hour novelty wall clocks; a Sonora chime tambour; a French carriage clock; a case for a Welch Patti clock; and a Kundo ATO. No watches made it to June's mart.

President Jon Start informed everyone that two members had passed since our last meeting, Bob Foster and Hosea Jump.

The clock contest for June was quartz clocks. Therese Lynema took first place while Pat Loftus came in second. In the watch contest, June saw quartz wristwatches competing for honors. John Loomis took first place and Rich Weiderman captured second.

Those wishing to know more about Chapter 101 and its goings-on are encouraged to check our website or to contact President John Start at 269-345-3726.
—Richard Weiderman

MINNESOTA

20. O.T. LANG
LOCATION: Various
WHEN: Third Saturday of odd-numbered months
MEMBERSHIP INFORMATION: Steve Scidmore
EMAIL: StSc112358@gmail.com
WEBSITE: https://Minnesotawatches.com/otlang

MAY MEETING: Eighteen members and guests attended the May meeting at Fong's Restaurant in Prior Lake. The meeting was presided over by Chapter President Gary Anderson. Diane and Darold Hanson served as hosts.

PROGRAM: Bill Thomas spoke about working in a watch material supply house. Bill spent most of his career at Twin City Supply, a nationally known retailer of watch parts based in Minneapolis. Bill had an early interest in trains that led him to railroad watches. Because of a major railroad yard in St. Paul, there were a number of watch material supply houses in the Twin Cities that catered to the train business. These included Albert Haman, S.H. Clausen and Co., C.R. Leeds Co., Birkauer-Thompson, and Twin City Supply.

One of Bill's hobbies is collecting vintage watch ephemera like catalogs, and he brought a number of those for members to leaf through. The bound volumes of Northwestern Jeweler from 1911–12, in particular, had wonderful ads and articles.

Bill recalls that Twin City often had to teach watch students how to fit crystals and hands. Somehow, watch schools did not teach this! People often sent cases to Twin City to identify the proper case parts needed. Figuring out the right part could be a challenge and it was one that Bill often took on.

Bill showed a photograph of Twin City in its last days, noting that when he started the most popular items were crystals, balance staffs, and mainsprings, and when he ended, the most popular items were quartz movements. *—Steve Scidmore*

MISSISSIPPI

41. MAGNOLIA
LOCATION: The Annex Building of Merit Health Hospital, 350 Crossgates Blvd., Brandon, MS 39042
WHEN: 1–3 p.m. on the second Sunday of February, April, June, August, October, and December
MEMBERSHIP INFORMATION: Bill Smith, 601-278-7853
EMAIL: wsmith114@gmail.com
JUNE MEETING: As always, we opened with a social time for members to catch up with what has happened since we last got together.

We started with a short business meeting after which Fred Ingram discussed the National Convention. He had several handouts to share with the group from the Convention and classes he attended while he was there. We also discussed our Chapter's past association with tower clock projects in our area and updates on some of these projects.

PROGRAM: Fred presented an interesting and well-researched program on the evolution of time measurement from sundials up to, and focusing on, the development of the atomic clocks used in the Global Positioning System (GPS). He discussed the many ways GPS has changed the world. *—Bill Smith*

MISSOURI

36. HEART OF AMERICA
LOCATION: Trailside Center, 9901 Holmes Rd., Kansas City, MO 64131
WHEN: 1 p.m. on the first Sunday of even-numbered months
MEMBERSHIP INFORMATION: Mark Parkins, 913-208-5369
EMAIL: parkins66209@yahoo.com
WEBSITE: https://new.nawcc.org/index.php/chapter-36-heart-of-america

Dennis Cooper presenting on the history and construction of Mennonite clocks to Chapter 36.

JUNE MEETING: Chapter 36 members held their regular meeting on June 2 in Kansas City. Seventeen people were present to hear Dennis Cooper's program about Mennonite clocks. A couple of members brought interesting show and tell items, and the River Cities Regional was discussed.

PROGRAM: Dennis Cooper presented on Mennonite immigrant clocks. With two complete Mennonite clocks for display and a slideshow presentation, Dennis first gave a history of the Mennonites from the Protestant Reformation to their displacement from regions of Russia in the late 1800s. Because of the Mennonites' prohibition against signing oaths and their separation from secular society, the Mennonite clockmakers worked outside of the artisan guild system. Consequently, they did not adopt many modern timekeeping innovations and period decorating styles. Many clocks made even in the late 19th century still had a single hour hand with a quarter-hour dial.

Dennis showed the parts and construction of Mennonite clocks with the two display clocks, partially disassembling one. The dials were made from flat, heavy, sheet iron. The older clocks before about 1840 had round dials with a shaped bonnet. Later dials were conventionally square

with an arched top. Mennonite clocks dials were painted with flowers or biblical scenes and often simply decorated with transfer decals. The movements have thick, cast brass wheels running in vertical iron strips instead of brass plates. The iron frame is housed in a simple sheet metal box, and the neatly turned weights and counterweights hang on rope- or chain-wound pulleys. The pendulums of Mennonite clocks are about 35″ long and powered by an anchor escapement. The pendulums are specially made for each clock with an added rosette or finial to match the weights. Oddly, the hour wheel is not attached with a pivot but rather floats in a retainer ring and is driven by leaves on the winding arbor. Most Mennonite clocks were time only, but a number had alarm and calendar complications. Historians estimate only 600 to 650 of these clocks still exist.

Dennis gave a comprehensive list of Mennonite clock collections and information sources. The Mennonite Heritage and Agricultural Museum in Goessel, KS, has three clocks on display. The Kauffman Museum, part of the Mennonite-affiliated Bethel College, in North Newton, KS, also has three clocks. The only book about Mennonite clocks, *Kroeger Clocks*, was published in 2012 by Arthur Kroeger, a descendant of a long line of Mennonite clockmakers. His Kroeger Clock Heritage Foundation has an excellent online museum of Mennonite clocks. In the NAWCC archives, the only article about Mennonite clocks was published in the October 1991 *Bulletin*. Two articles titled *Religious Sect Clockmakers* are found in the December 1973 and February 1974 *Bulletins*.

The primary subject of the business portion of the meeting was a discussion of the 2024 River Cities Regional and the possibility of a 2025 Regional. Members considered the recent April Regional a success. Further discussion of a 2025 Regional revolved around holding it at the Miami County Fairgrounds at Paola, KS. At the suggestion of Bob Chester, Mark Parkins and Joe Loar inspected the site and found it clean and roomy. The daily rental includes tables, use of the kitchen, picnic area, and plenty of overflow space. General talk among members about lodging, restaurants, and travel distance for attendees led to a positive judgment about holding the 2025 Regional in Paola. Chris Hill moved for Chapter 36 to hold the next regional in Paola and to lower the price for vendors' tables. Harry Schultz seconded the motion, and the majority of members voiced approval.

SHOW AND TELL: Three members brought clock items they are currently involved with. Ed Reupke brought a couple of scrap movements from cleaning out his collection. He had a good quality Waterbury carriage clock that needed a new escapement. Chris Hill showed a spring winder that he is making based around a 3/8″ socket wrench extension. He is machining the parts from heavy aluminum guided by detailed CAD plans and a 3D printed model. He has a very neat ratchet mechanism completed. Harry Schultz brought the book *Ithaca Clockmakers* by Joel Warren. Harry had purchased an Ithaca calendar clock at the recent River Cities Regional and needed information. He found the Warren book very detailed.

Chris Hill sold the tickets to the 50/50 drawing in the absence of Wayne Andrews. Ed Reupke had the winning ticket. —*Thaine Damman*

NEW HAMPSHIRE

189. GRANITE STATE TIMEKEEPERS
LOCATION: First Free Will Baptist Church. NH Route 114, North Sutton, NH 03260
WHEN: Six meetings on the third Saturday, September–May
MEMBERSHIP INFORMATION: Christopher Way
EMAIL: c_way@mcttelecom.com

JUNE MEETING: Twenty-seven members and one guest attended the meeting of the Granite State Timekeepers. Ted McCann asked if anyone went to the National Convention in Chattanooga. Jon Weber shared that he did and that the items on sale were 75–85% pocket watches. Bob Frishman gave a presentation on car clocks, and English Horology had a great exhibit. The event was great for networking. Jon felt that the south has more clocks, and the northeast has more machines.

Paul Owens informed the group that the Chapter will try to have more presence on social media, and he volunteered to be a moderator for the Facebook page. In years past, users could not post to the page and that

will now be opened up. There are two rules: be courteous and no "for sale" posts. Our intention is to soon develop a website as well.

SHOW AND TELL: Tim McCormack showed a 1700s four-poster lantern-style clock. Some notable features are brass bun beet, single hour hand, strikes time and quarters fairly accurately, two train (time and strike are separate). Steve introduced us to the German word *Verschlimmbesserung*, which means to make something worse when trying to make it better. He passed around an example, which he described as a crippled escapement: a homemade experimental escapement, which was very interesting.

PRESENTATION: Bill Fletcher of Fixitech Clock Repair in Westmoreland presented "MicroSet Timer 3: Its Uses and Capabilities for Clocks." Bill explained and demonstrated the uses and capabilities of the device along with a couple of short videos by the maker of the MicroSet 3. The MicroSet Timer 3 can do a running average, measuring the rate of your clock or watch over time. It displays rates as seconds of error per day. A pendulum adjustment mode displays the amount you must move the pendulum bob to achieve the correct rate. The computer can display a paper tape and the sounds of a watch tick and amplitude. Bill set up a movement on a stand and showed the pendulum swinging between the beam break sensors and how to adjust it. Questions and answers were offered throughout and at the end of the presentation. —*Christopher Way*

NEW YORK

40. RIP VAN WINKLE
LOCATION: Hearthstone Apartments, 4000 Florence Dr., Latham, NY 12110
WHEN: The second Saturday of March, May, September, and November
MEMBERSHIP INFORMATION: Jim Burghart
EMAIL: nawccchapter40@gmail.com
WEBSITE: http://new.nawcc.org/index.php/chapter-40-rip-van-winkle

MAY MEETING: The Rip Van Winkle Chapter held a meeting on May 11, and all enjoyed an excellent hot breakfast and lunch that Debbie and Jeff Mayott prepared.

PROGRAMS: First, Jim Burghart demonstrated gilding. Multiple techniques were shown, including water gilding on glass and oil size on wood and gesso. A short tutorial on glass cutting followed this.

Our second presentation was by Ron Nollet, a past National crafts winner, hoping to win again at the 2024 National Convention. Ron showed off his progress on a clock he designed with a rotating pendulum that runs silently. We saw the early stages at our last meeting, and it was amazing how much Ron had done since. He had finished the walnut case and treated us to the clock setup and running during the meeting. A 37-pound weight provides power! We all wished Ron the best of luck in Tennessee.

Chapter 40 held a public watch and clock show April 20, and it was a great success. Organized in collaboration with its Monday night group, several members brought in some highlights of their collections to show off to other clock enthusiasts in the local community.

The public was encouraged to bring in any horological pieces they wanted to inquire about, be it historical relevance, potential repair diagnoses, or rough value estimations. Some folks with collections of their own brought in albums and were met with many compliments from Chapter members. Chapter 40 would like to thank Peter Elmendorf for putting a great deal of effort into advertising for the event, Debbie Mayott for graciously providing the delicious and much-appreciated refreshments throughout, and Burnt Hills Baptist Church for providing the venue. We look forward to building upon this success with another event in 2025. —*Jim Burghart*

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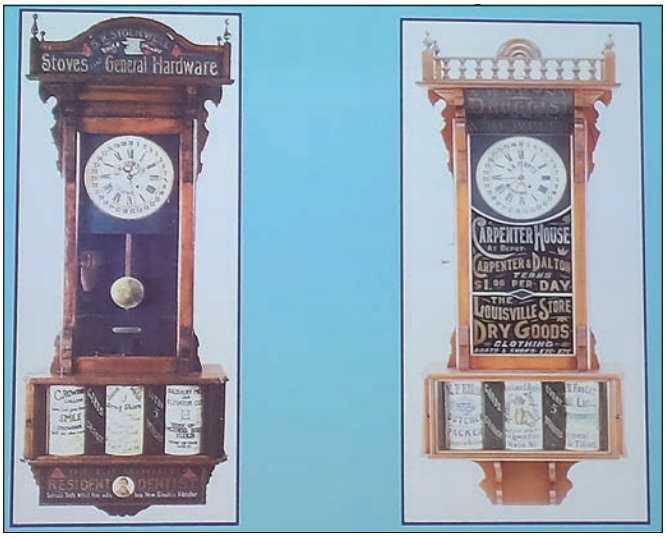
55. CENTRAL NEW YORK
LOCATION: CNY Living History Center, 4386 State Rte. 11, Cortland, NY 13045
WHEN: First Sunday of February, April, June, November
MEMBERSHIP INFORMATION: Chad Sopp or Chris Beattie
EMAIL: timesmithantiques@gmail.com or beattie@hws.edu
WEBSITE: new.nawcc.org/index.php/chapter-55-central-new-york

JUNE MEETING: Chapter 55 met on Sunday, June 2. President Chad Sopp presided over the business meeting



A slide from Russ Oechsle's presentation to Chapter 55 about Sydney advertising clocks.

Ken and Carol Hurst show a few pieces from the late Ray Rio's collection to Chapter 84.

and our show and tell. Updates were announced by a couple of committee members for the planning of the Eastern States Regional.

PROGRAMS: There were two great presentations for our June meeting and picnic. The first was on the history of Sydney advertising clocks by Russ Oechsle. His presentation included an overview of the mechanical operation of the clock and the rotation of the advertisements. While providing a short history of the maker, Andrew Van Woert Strait, Russ provided some newspaper clippings of A.V. Strait announcing himself as a jeweler and practical watchmaker. This fabulous presentation touched on many areas but centered around the advertising cards, case modifications, and the clock movement and subsequent patents. Like all of Russ's presentations, this was one that will not soon be forgotten!

The second presentation was given by Charles Faruol on "Ithaca Grandfather Clocks and Their Cousins." Charles gave an in-depth talk about the variations of the case over the years and told stories about how he began his journey into collecting Ithaca grandfather clocks. Charles brought examples of several clocks from his personal collection, including a mission-style clock and the most sought after and rare Ithaca grandfather clock. His clocks were beautiful and the information Charles provided was great.

Many thanks to Tammy Beattie for organizing our picnic luncheon and savory desserts. —*Chris Beattie*

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84. MID-HUDSON
LOCATION: Freedom Plains Presbyterian Church, 1168 Route 55, Lagrangeville, NY 12540
WHEN: Normally, the second Saturday of even-numbered months
MEMBERSHIP INFORMATION: Mark Nathanson, 845-592-0065
EMAIL: tictockmark@hotmail.com
WEBSITE: new.nawcc.org/index.php/chapter-84-mid-hudson-chapter-84

JUNE MEETING: Our bimonthly meeting attracted more than 25 guests and members, including some from neighboring Chapters. A typically active mart drew everyone's interest and featured some old and unusual timepieces and movements. Chapter President Chuck Montrose took the opportunity to recognize a longtime Chapter member, Al Mack, celebrating his 50th year as an NAWCC member (#39175) and a regular attendee of our meets.

SHOW AND TELL: First up was John Wilman and his epicyclic clock project. John's plans were based on a circa 1830 design by William Strutt and included a ring

Paul Richmond presented to Chapter 17 on various aspects of the Atmos Clock.

gear drive with teeth on the ring's inner and outer edges. John displayed several chucks he had fashioned for cutting this gear. The project is nearing completion. Ken Hurst, son-in-law of the late Ray Rio, a noted collector and clockmaker, brought several samples of his father-in-law's collection. Ken and his wife, Carol, inherited a sizeable collection of timepieces, tools, plans, and parts.
—Mike Graham

NORTH CAROLINA

17. CAROLINA
LOCATION: Lexington Masonic Lodge, 468 Central Ave., Lexington, NC 27292
WHEN: Mart 9:30 a.m., classes 10:15 September 14, November 9
MEMBERSHIP INFORMATION: Terry Hall
EMAIL: tehall2018@gmail.com
WEBSITE: https://new.nawcc.org/index.php/chapter-17-north-carolina

MAY MEETING: We welcomed 21 attendees at our May meeting. Chapter 17 was glad to welcome new members Anthony Price and DuWayne Amen. Anthony lives in Hickory and DuWayne calls Winston-Salem home. We were pleased to see returning member Brian Brady of Burlington.

An active mart was held with plenty of items for sale/trade, with a few items for silent auction. David Pendley conducted a clock education class with about 10 students learning about unusual snail/rack setups.

Judy Lawrence won a door prize, and Paul Richmond cashed in on the 50/50 drawing, donating the funds back into the Chapter. Larry Triplette donated a clock for auction for the Chapter's benefit. The lucky winner was Vivi Burlacu.

PROGRAM: Paul Richmond gave a talk on Atmos Clocks, with a display of various examples. Paul, a member since 1972, took until 2008 to obtain his first example, then progressed to collecting and repairing them. Paul reviewed the idiosyncrasies of these clocks and their delicate mechanisms, explaining some of his first expensive mistakes. Research Paul has performed has resulted in a fairly accurate dating system from the markings on the clock and the bellows assembly.
—Terry Hall

OHIO

23. BUCKEYE
LOCATION: Moraine Civic Center, 3050 Kreitzer Rd., Moraine, OH 45439
WHEN: October 5, December 7
MEMBERSHIP INFORMATION: Peggy Goodwin
EMAIL: pjgoodwin@fuse.net
WEBSITE: https://new.nawcc.org/index.php/chapter-23-buckeye-23

JUNE MEETING: The crowd was a bit thin (27 members and guests) for this Buckeye Chapter meeting, but what we lacked in numbers was more than compensated for by the enthusiasm of those who attended. The mart was quite active with members making a lot of interesting finds; and there's always the lively interchange between members as they freely share their horological knowledge and expertise with each other.

PROGRAM: Ann Glasscock, associate curator of the Taft Museum of Art in Cincinnati, was the guest presenter. Specializing in decorative arts and furniture,

Ann Glasscock, associate curator at the Taft Museum of Art, describes its collection of 17th- and 18th-century watches during the June meeting of Buckeye Chapter 23.

Ann has been part of the Taft's curatorial team since 2018. She gave an overview of the museum's history, then an in-depth look at their collection of 17th- and 18th-century watches.

The Taft Museum, a 200-year-old landmark, was gifted to the City of Cincinnati in 1927. Anna and Charles Taft collected a series of 49 exquisite watches during their extensive travels. Since becoming a museum, the watch collection has remained intact, never restored or altered. Some of the unique pieces Ann described include:

- A mid-1600s calendar watch made in Switzerland for the Turkish market
- The Grim Reaper, prized both as a "pocket machine" and for its unique artistry
- Enamel watches depicting themes such as biblical stories, classical mythology, or portraits
- A clock watch that strikes on the hour
- Form watches in the design of musical instruments, fruit, skulls, and the like
- Exotic materials construction using horns, tortoise shells, precious stones, and sharkskin

The Buckeye Chapter had awarded Ann a $500 scholarship to attend a foundational watch course at the AWCI last fall. She disassembled and reassembled an 18th-century-style Swiss movement (40 parts), allowing her to better understand how watchmakers created the intricate, complex movements housed within these tiny technological wonders of the Taft collection.

Paul Manfredo of Paul's Clocks discussing fusee movements with Chapter 37 treasurer John Scott.

On May 29, members of the Buckeye Chapter traveled to the Heritage Center in Springfield (formerly the Clark County Historical Society) to donate a book to their research library in memory of Tom Spittler. *Clockmakers and Watchmakers of America* was the collaborative work of Tom and Sonya Spittler (who lived in Clark County) and Chris Bailey (from Connecticut). Craig Ankeney, Earl Harlamert, Peggy Goodwin, and Mike Goodwin presented the book to Natalie Fritz, archivist for the Heritage Center. Unbeknownst to us when we initially reached out to the Heritage Center about this donation, Natalie knew Tom and had assisted him multiple times in the past as he researched various topics. What a remarkable coincidence!

Whenever you're traveling in the Dayton/Cincinnati area on a weekend that our Chapter meets, by all means, please join us. All NAWCC members are welcome at our meetings, and your presence certainly contributes to the fun. —*Peggy Goodwin*

PENNSYLVANIA

37. ALLEGHENY
LOCATION: Tepper Hall, 4765 Forbes Ave., Pittsburgh, PA 15213
WHEN: First Sunday of even-numbered months
MEMBERSHIP INFORMATION: John Scott
EMAIL: alleghenyclockchapter37@gmail.com

JUNE MEETING: Five members of Allegheny Chapter 37 participated in Paul Manfredo's clock repair workshop on June 8 in his shop. Paul Manfredo has had his business, Paul's Clock Repair, for 55 years, and has been a certified clock master since 1968. Paul can be reached at paulsclockrepair@aol.com. His grandson, Cody Ziowlkowski, has been learning the trade from Paul for a year and a half. Paul's wife, Judy, is a certified clock technician who services tallclocks in their home. This was Paul's third time presenting to the Chapter. One time he spoke about self-winding clocks, and the other time he gave members a five-hour workshop on basic clock repair.

Paul used John Scott's Ramzay of Dundee fusee clock movement to demonstrate its spring mechanism and talk about replacing the chain to repair the movement. He explained why a chain is better to use between the graduated spool and barrel, and discussed how the spring works between the two graduated spindles. Paul also demonstrated how to fix a chime movement on John Bauerlein's mantel clock.

Comments were uniformly positive. This was a worthwhile activity and something that Chapter 37 should do more. —*Claudia Scott*

193. SUSQUEHANNA
LOCATION: Trinity Episcopal Church, 844 W. 4th St., Williamsport, PA 17701
WHEN: Third Wednesday of even-numbered months
MEMBERSHIP INFORMATION: Allan Harvey
EMAIL: allanwharv@gmail.com

JUNE MEETING: Twenty members and guests enjoyed a catered dinner followed by a business meeting. After that, Rick Wolfe discussed his research into the "mystery" of the clocks presented to five churches in Watsontown. Barry Knauer brought a very interesting pocket watch and novelty clock for show and tell.

PRESENTATION: Ed Warble brought his jeweler's lathe and shared a working presentation and discussion on balance staff replacements. —*Allan Harvey*

SOUTH CAROLINA

144. PALMETTO STATE
LOCATION: Lizard's Thicket, 7938 Garners Ferry Rd., Columbia, SC 29209
WHEN: 9:30 a.m. on the first Saturday of even-numbered months
MEMBERSHIP INFORMATION: William McCoy, Dave Graley, Helga Crandall
EMAIL: info@lowcountryhorology.com, dlgraley@aol.com, thcrandall@hargray.com

JUNE MEETING: This was the first meeting with new President Dave Graley presiding, along with new Secretary/Treasurer Robert Auman. Robert now shares the secretary/treasurer position with Helga Crandall to ensure that each meeting will be covered given that not all of our Chapter members can always attend each meeting. Our usual mart was followed by our formal business meeting.

After that, William McCoy gave a description of the clock he entered in this year's Crafts Competition in Chattanooga. We then sat down to our customary lunch, provided by the Chapter for members, spouses, and guests.— *William McCoy*

Vice President Paul Young gave a presentation on his Seth Thomas regulator to Chapter 42.

TENNESSEE

42. TENNESSEE VALLEY
LOCATION: Bradbury Community Center, 3343 Buttermilk Rd., Kingston, TN 37763
WHEN: First Saturday of even-numbered months
MEMBERSHIP INFORMATION: Fran Geier
EMAIL: fcgeier@gmail.com

JUNE MEETING: President Anthony Manis called the meeting to order at 11:05. Visitor Eleanor Wills, Reese Wills's wife, was welcomed. Renee Coulson, acting secretary, read the minutes from the April meeting. A motion to approve was made and seconded.

In the absence of Michael, Anthony Manis provided the "Groaner" for the month: "Our dog is terrified of clocks! She doesn't mind its tocks but she's really scared of its ticks!"

PROGRAM: Paul Young, vice president, gave a presentation on his Seth Thomas jewelers regulator—No. 2000 (1975-1976), which is a wall-mounted timepiece. This American-made clock is weight driven with a pinwheel escapement. The time-only movement was made by Palum Industries Inc. of Rochester, NY. This was a limited-edition clock with only 200 made and which retailed for $2,250. It would be difficult to place a value on it in today's market, but one ballpark estimate put the number between $5,000 and $7,000.

The movement is precision quality, and in some circles, considered the finest American jewelers pinwheel regulator movement ever produced. The bass dial surrounds a 10 1/2" diameter heavy white porcelain dial with Roman numeral hours, closed minute ring, subsidiary seconds ring/bit at 12 o'clock and steel skeletonized "Tulip" hands, a trademark of the work of Barry Palum. The dial is signed "Seth Thomas" below the center opening. The lyre pendulum hangs from a heavy suspension at the upper end of the backplate. Below the compound rod is a temperature compensated gridiron pendulum with alternating rods of Invar, steel, and brass. It has a decorative skeletonized lyre attachment placed just above the large 2 1/2" brass bob at the bottom.

The 11" weight is a 32-pound brass weight powerful enough to drive a triple compounded pulley system resulting in a running time of eight days. The solid oak case has a double-lock door, glass-encased front and sides, and is hung by a sturdy bar mount the width of the clock. The case is a reproduction of Seth Thomas's classic Regulator No. 17. Overall dimensions are 72" high x 18 3/4" wide x 11" deep.

Our delicious potluck luncheon followed the program. We would love to have you join us for a visit if you are in the area. Please contact Fran Geier for more information. *—Fran Geier*

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48. KING COTTON TIMES
LOCATION: Junior League Building, 3475 Central Ave., Memphis, TN 38111
WHEN: Second Sunday of odd-numbered months except for May 21; mart 1:30 p.m.; regular meeting 2 p.m.
MEMBERSHIP INFORMATION: Ray Smith, 901-272-0939
EMAIL: rsmithtn@hotmail.com

MAY MEETING: The meeting was called to order by John Williams, our Chapter president. Seventeen members and guests attended. Thanks to all who did.

This clock was one of several that Chapter 48 President John Williams made and presented to the group at their May meeting.

A motion was made, seconded, and accepted to pay the Junior League $300 for the use of their facility. Curtic Keech handed out certificates to those who completed the basic clock repair course. The instructors were John Williams, Calvin Flowers, and Curtis Keech. We have received very positive feedback on the course. A big thank you to John Williams, Calvin Flowers, and Curtis Keech for preparing and presenting course material.

John Williams provided historical documentation that includes our Chapter constitution and bylaws. Ray has created an electronic copy of the documents and shared the copy with John and Glen Weeks. Ray will send the documents to anyone who has an interest.

PROGRAM: Club members and guests brought items that they had worked on. Jack Stover brought a small New Haven clock that he believed to be a dime store clock. The clock dates from between 1800–1850. Jack also brought a French clock that was purchased at an auction in Aberdeen, MS. Jack had to refit the movement that was purchased with the clock.

Glen Weeks brought a clock/music box and an Ansonia clock. Tom Faller displayed a wall-mounted calendar clock with a walnut case. The clock has a Welsh movement. Phil Wallace brought a kitchen clock that he had worked on. Phil also displayed a reverse glass painting he made. He also displayed glass from Coke clocks. Phil passed around a catalog from Mr. Shipley Clock Supplies. Mr. Shipley was located here in Memphis.

Don Chandler brought a clock made by his father, Lee. John Williams brought clocks that he made. The first was a wall-mounted clock. The second was a table clock that honors the King Cotton Chapter and is now displayed in the top right corner of our minutes. John and his brother even cut down the walnut tree they used to make the case. John also displayed clock cases with a quartz movement. The clocks have wooden arms and nuts. He also brought in finials that he has turned. —*Ray Smith*

TEXAS

15. SOUTHWESTERN
LOCATION: Pflugerville Rec Center, 15822 Foothill Farms Loop, Pflugerville, TX 78660
WHEN: Third Saturday of each month except August and December
MEMBERSHIP INFORMATION: Pat Holloway
EMAIL: patricia.w.holloway@gmail.com

MAY MEETING: A full house of members and guests enjoyed Jim Kiesling's program on "Jim's Clocks." Jim and his wife have been collecting clocks since the 1970s. His presentation started with an overview of Seth Thomas's involvement with other clockmakers and casemakers before forming his own company in Plymouth Hollow, CT. Plymouth Hollow was incorporated as a city, and the name changed to Thomaston in his honor.

The program also included pictures, descriptions, and interesting stories about how their clocks were acquired. Many of them had humorous stories, such

Chapter 124's outgoing president, Tim Brownlee, taught the spring barrel clock repair class in late June: (standing, from left) Jon Anderson, Doyle Welch, Tim Brownlee, Fletcher Thomason, Alex White, and Max Haesly; (seated, from left) Mike Brazil and Barry Kilfoy.

as one that took an adventurous dive from the top of the kitchen cabinets to the floor, thanks to an inquisitive cat. Luckily, Jim was able to restore the clock, and it still holds a place of honor in their collection.

Many of their clocks are Seth Thomas, and attendees were able to see very nice examples of Seth Thomas's various styles of mantel and wall clocks, including many with beautiful inlaid cases. He included the date of manufacture and model name. This was very helpful as it allowed attendees to understand the evolution of Seth Thomas clocks.

Although Jim is quick to say he really doesn't work on clock movements, he did share pictures of clocks for which he made cases and gifted to various family members. In addition to making these cases from scratch, Jim enjoys case work and woodworking in general. (It's a good skill to have with curious cats around and clocks that have had rough trips or less-than-ideal care through the years!) —*Pat Holloway*

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124. LONE STAR
LOCATION: Hurst Conference Center, 1601 Campus Dr., Hurst, TX 76054
WHEN: October 5 and January 4
MEMBERSHIP INFORMATION: eve.slough@sbcglobal.net
WEBSITE: www.chapter124.org

JUNE MEETING: Chapter 124 President Tim Brownlee kicked off the meeting with 43 members in attendance. Our fiscal year begins in June, and the meeting's primary purpose was to elect a new board of directors.

Our current board includes President Tim Brownlee, Vice President Tom Hefner, Treasurer Tim Henz, Secretary Bill Nash, Pete Cronos, William Slough, Mike Brazil, Wayne Hall, James Edwards, and Myron Patrick. All were acknowledged for their many volunteer hours serving the Chapter's membership.

Retiring from the board this year are:
Pete Cronos, who drives all the way from Jonesboro, AR! Now that's dedication! Pete has chaired our Regional pre-registration, been our go-to guy for Sherline equipment, and has always been willing to help out where needed. We hope we can still count on him to volunteer in the future!

And Wayne Hall, who got talked into serving by Tom Hefner. Wayne helped us out last year by serving a one-year term on the board and was a huge help to Tom and the Chapter at the Mesquite, TX, Regional "Let's Make a Deal" Table and our auctions. We hope to see Wayne continue to help in these areas.

And finally, outgoing President Tim Brownlee. Tim has been trying to get off the board for a while now, but we just wouldn't let him go. He's just too good! He agreed to be president one more time, as long as it was for just one year, and we are honoring that agreement. But fortunately for Chapter 124, he's not riding off into the sunset just yet. He is going to join our education program and will teach the CR200 spring barrel clock repair course later in June. Thank you, Tim, for your service and for continuing to serve the Chapter in another way!

Evelyn Slough was acknowledged for her work as keeper of the membership roster. Evelyn is always up-to-date on potential candidates for the board. And we also had a lot of input from board members and class instructors.

Directors continuing with one year left in their term include Tom Hefner, William Slough, and Bill Nash. Directors with two years left are James Edwards, Tim Henz, and Myron Patrick.

The membership elected Jon Anderson, Mike Brazil, and Arnold Madnick to new three-year terms. The newly elected officers are Vice President Tom Hefner, Treasurer Tim Henz, and Secretary Bill Nash. And finally, Brian Schmidt was elected for a one-year term as president.

An auction of horological items followed, wrapping up with a BBQ lunch.

Tom Hefner hosted a successful open bench workshop held at our classroom facility in Irving. Open bench is an activity where members can bring clock and watch projects to work on, use Chapter tools, and often get help and advice from some of our more talented members.

Tim Brownlee had five students for his spring barrel clock repair class: Jon Anderson, Max Haesly, Fletcher Thomason, Doyle Welch, and Alexandra White. Assisting Tim were John Acker, Mike Brazil, Barry Kilfoy, Brian Schmidt, and Larry Thomas. Students learned how to remove and return springs to their barrels, and were introduced to rack-and-snail striking. *—Bill Nash*

139. SAN JACINTO
LOCATION: Grace Community Church, 1021 Campbell Rd., Houston, TX 77055
MEMBERSHIP INFORMATION: Steve Egloff
EMAIL: stephen.egloff@yahoo.com
WEBSITE: chapter139.com

PROGRAMS: Chapter 139 continues to ramp up its class schedule. Expert machinist Desmond Rolf led a beginners' lathe class in April, followed by Ken Arnold's two-day kitchen clock class in May. *—Bill Hardy*

VERMONT

109. GREEN MOUNTAIN TIMEKEEPERS SOCIETY
LOCATION: Varies
WHEN: March, April, May, June, September, October, November
MEMBERSHIP INFORMATION: John LaBarge or Dale Kreisler
EMAIL: jlabarge101@msn.com or dkclockfix@aol.com

(left to right) Members Carl Belleri and Andy Staton work on a project during Chapter 139's lathe class.

MARCH MEETING: The Green Mountain Timekeepers Society held their March meeting at the home of Dale and Elaine Kreisler in Rutland. A light lunch was enjoyed by 27 members and guests. New members attending the meeting were Joe and Judy Paradis, Brandon Frey, Lanny Dennison, and Alexander Fiske.

BRING AND BRAG: Fred Ringer explained a new tool that he developed to make pivot holes in wooden clock movements. Alan House showed us a newly acquired pocket watch that was made in Barton, VT. Steve Bruce showed a book about automata. Brandon Frey demonstrated a self-winding mechanism weight for Black Forest clocks that he designed himself. Alexander Fiske showed a very nice staking set and several pocket watches in his collection.

PROGRAM: Roger Nolfe presented "How Quartz Watches Work and the Swiss Lever Escapement." Roger explained several of the tools that he uses to repair the various watches he encounters. It was very detailed and interesting. Philip Bell followed with "Louis Moinet and the Invention of the Stopwatch." This was another very interesting topic.

Geoff Greene and Dale Kreisler showed tools and shared ideas that they use in their shops during our tool and idea session. Among the items showed by Geoff were several modifications that he has made to an Ollie Baker spring winder to aid in his work.

Jack McBroom presented "Collecting for Fun and No Profit" to Chapter 34.

The Northeastern Regional Meeting was discussed and several members stated that they would be attending. A couple of mystery items were auctioned to benefit Chapter 109 and a few lucky attendees won door prizes. The meeting adjourned at 3:30.

JUNE MEETING: The Green Mountain Timekeepers Society held their Spring meeting at the home of Dale and Elaine Kreisler in Rutland. A lunch was enjoyed by the 21 guests that were present. New members welcomed were Robert Gary, Sue Gary, Alexander Fiske, Paul Grace, and Dave Warner.

BRING AND BRAG: A rare miniature fusee clock was shown by Fred Ringer; a French industrial lighthouse clock was shown by Lindy Larson; some research done by Alexander Fiske regarding a watchmaker named Fremont was presented; and some unique items generated on a 3D printer were shown by Brandon Frey.

During our tool and idea part of the meeting, Roger Nolfe demonstrated a nice tool to adjust a pocket watch balance wheel, and Dave Welch showed several tools commonly used for clock repair and cautioned about common mistakes to avoid when doing repair work.

PROGRAM: Robert Gary presented on Junghans Swinger clocks. Robert has done extensive research on the Junghans Swinger and gave a well-organized and very informative PowerPoint program that included much history of the Junghans clock company and many examples of its swinger clocks. The program was enjoyed by everyone and we all thank Robert for his presentation.

A couple of mystery items were auctioned and some lucky folks went home with a door prize. Thank you to all who attended. —*Dale Kreisler*

VIRGINIA

34. OLD DOMINION
LOCATION: Holiday Inn Gateway, 515 Bypass Rd, Williamsburg, VA 23185
WHEN: October 13, December 8; February 9, 2025
MEMBERSHIP INFORMATION: Judy Draucker
EMAIL: jtdraucker@gmail.com
WEBSITE: www.nawcc-ch34.com

JUNE MEETING: Twenty-four attended the June meeting of the Old Dominion Chapter 34. Our exhibit and mart opened at 10:30. The mart table had a variety of clocks, pocket watches, and wristwatches. The exhibit table had the usual wide variety of items, including a Seth Thomas battery-powered clock, a clock with a terrible pivot repair attempt, an unusual Seth Thomas pocket watch mounted in a heavy rectangular metal case coated with leather with a unique push button set (called a "carriage clock" in the catalog), two World War II military timers, a collection of old dollar watches, a nice brass Chelsea clock, a pocket watch in a Brooklyn Watch Case Co. low-karat case intended to misrepresent its gold content, and an unusual alarm clock. Our usual procedure is to have each exhibitor get up and tell a story about his item. A ticket is given to each presenter, and the holder of the winning ticket receives a free lunch. Jim Wynn, who brought the unusual alarm clock, won the free lunch.

PROGRAM: Jack McBroom presented "Collecting for Fun and No Profit." Jack and his wife may have started late in life collecting clocks; however, their enthusiasm and depth of knowledge of a wide variety of unusual clocks from all over the world was greatly appreciated by our enthusiastic audience. Some of the clocks discussed were their first clock, a Hughes grandfather made in Wales circa 1840, a brass dial Kelly (London) grandfather circa 1775 with Harrison-style maintaining power, a fusee 1880

"dial clock" with drop, a stable clock with a 2′ dial that they had mounted into the wall of a previous residence, an unknown pin-pallet tower clock that was time only with two driving weights, a Thorton 8-day triple fusee with nested bells, and a Winterhalder and Hofmeier bracket clock.

After our buffet lunch, our new officers, President Michael Schulman and Vice President David Hughes, presided over the business meeting. As is our tradition, door prizes were given by drawing tickets given to all attendees. However, our usual door prizes were replaced by envelopes, each with a $5 bill.

Our next program was to be a video by Ken De Lucca. However, due to the barrage of questions about the McBroom clocks, it was delayed to the next meeting, and Jack continued his presentation until the meeting was adjourned. —*Ed Fasanella*

CANADA

92. SOUTHWESTERN ONTARIO
LOCATION: Mount Brydges Legion, 2500 Veterans Dr., Mount Brydges, ON N0L 1W0, Canada
WHEN: Usually the first Sunday of alternating months starting in October
MEMBERSHIP INFORMATION: Rick Robinson
EMAIL: rickrose@execulink.com
WEBSITE: nawcc92.com

JUNE MEETING: Our meeting was very well attended for such a gloomy, rainy day. The mart tables were full and lots of items changed hands.

PROGRAM: Ian Smith was our speaker and once again he gave a very interesting presentation. He spoke on the history of the Jefferson Mystery Clock Co. and its beginnings in Chicago, building fuse boxes and transformers. The company's first clock was the golden hour model in 1949, and it went on to make a variety of different models. Ian displayed his collection featuring most of the types produced, including his prized Jefferson toilet chain clock.

SHOW AND TELL: The theme was also mystery clocks. There were some Jefferson clocks along with a mystery swinging pendulum clock. Ted Arthur brought a wooden mantel clock with a coin slot on top, looking for information on this mystery clock.

Coffee, homemade baked goods, and a 50/50 draw rounded out our last meeting before our summer break. See you in October. —*Rick Robinson*

JAPAN

108. CENTRAL TOKYO
LOCATION: M Japan, 〒136-0071 Tokyo, Koto City, Kameido, 2 Chome–19–1 5F
WHEN: 1 p.m.–5 p.m. October 27, November 24, December 15
MEMBERSHIP INFORMATION: Shin Yamazaki
EMAIL: popopuku5@gmail.com
WEBSITE: nawcc108.org

APRIL MEETING: Dr. Wakita introduced the meeting and went through the highlights of the latest *Bulletin,* translating part one of Joël Pynson's article on the quartz crisis.

PROGRAM: Katsuhiro Sasaki, curator emeritus at the National Museum of Nature and Science, gave a talk in which he explained the mechanism that provided automatic adjustment of the numerals on a watch showing natural unequal hours.

SHOW AND TELL: A great range of objects were shared, from an unrestored wa dokei from the Edo period, microscope lighting, a progress update on shop-made worm gear drive to improve a milling machine, a selection of pocket watches, a selection of Citizen Adorex watches that feature regulation through the crown, handmade watch dials fitted to Seiko watches, and commemorative porcelain pieces from across the Chapter's history.

Chapter 108 were wonderfully hospitable and welcomed my family to the meeting. We discussed the problems facing Chapter 108 (and other international Chapters), namely, the high value of the dollar, bank transfer fees, and the value proposition of the NAWCC. These matters are being discussed at the Board level and with the Chapter Relations Committee, and we look forward

Katsuhiro Sasaki, curator emeritus at the National Museum of Nature and Science, gave a talk to Chapter 108 explaining the mechanism that provides automatic adjustment of the numerals on a watch showing natural unequal hours.

Part of Chapter 159's exhibit of early English jeweled watches and components at the National Convention in Chattanooga.

to positive outcomes from these discussions. After a thoroughly enjoyable meeting, we were invited to feast at a local fish restaurant. We were in great company and have fond memories of the visit. Thank you, to all at Chapter 108. —*Rory McEvoy*

SPECIAL INTEREST

159. BRITISH HOROLOGY
LOCATION: Mid-Winter Regional, Southern Ohio Regional, and National Convention, as well as online meetings
WHEN: Varies
MEMBERSHIP INFORMATION: Rich Newman
EMAIL: britishhorology@gmail.com
WEBSITE: britishhorology.org

JUNE MEETING: Our last meeting was at the Chattanooga National Convention, and we were honored to have Dr. Ian Greaves come over from the UK to give the presentation "Watch and Jewel Making In Nineteenth-Century England (With an American Connection)." The Chapter also arranged an outstanding collection of early English jeweled watches and components in the Exhibit Room to complement the presentation. A second exhibit of English miniature and library clocks was also displayed for clock enthusiasts.

The British Horology Chapter meets at the Mid-Winter Regional, Southern Ohio Regional, and National Convention, and additionally holds online meetings and lectures. Members also receive *British Horology Times*, a newsletter with articles and meeting updates.

The Chapter is open to all members. Dues are $5 per year anywhere in the world, and every penny and pence goes to education (officers receive no compensation or expense reimbursement). Why not try us out? Everything is on our website: britishhorology.org. —*Rich Newman*

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National Association of WATCH & CLOCK Collectors, Inc.

Update your Chapter officers or website by emailing Alex

asimpkins@nawcc.org

Derek Roberts

By Leigh Extence (UK)

Derek Roberts, who died at age 93, was an antiquarian horologist, author, and dealer, who brought the modern world into a previously somewhat rarefied business.

He spent his school days at Dulwich College in southeast London and, having completed his National Service in the RAF, he followed in his father's footsteps to enter the world of dentistry.

While on a drive around Kent in the late 1960s with his wife, Valerie, he came upon an antiques showroom, complete with living quarters, for sale in Tonbridge. Thinking this would be a good opportunity for Valerie to have a small business of her own, and a place to set up home, they bought the property and went about buying stock to fill the space. One of the first pieces they purchased was a non-functioning Vienna-style wall regulator, and so it was with typical Derek vigor, and without any previous experience, that he sat down at his desk with his dentistry tools, took the movement to bits, cleaned and oiled it, and soon had the clock up on the wall running; it sold within days. This was the start of his obsession with antique clocks, and within several years it was this side of the business that took the lead at the showroom at 24 Shipbourne Road that was to become a world-renowned address in the horological world.

Derek became a member of the British Antique Dealers Association (BADA) in 1973 and gained his Freedom of the Worshipful Company of Clockmakers in 1976, being raised to the Livery in 1977. He joined the NAWCC in 1982 and served on its Museum Committee for nearly 10 years.

Although clocks by Tompion, East, and Knibb passed through his hands, he saw the pleasure in other examples that could be considered rare, quirky, and interesting but still of exceptional quality. He never shied away from the seemingly impossible and enjoyed bringing back to life historically important pieces that to many would be past redemption, including the stunning Edward Cockey of

Warminster three-month duration astronomical long-case, with various complications, housed in a pillared chinoiserie case that stands a towering 11' 7" high.

In 1984, I joined Derek and his team as manager. This was an exciting time for his business, as he was proving to be quite an innovator as a dealer in the horological world. We started to produce full-color catalogs, with all the images taken by Derek on his trusty Hasselblad camera. When the internet was in its infancy, Derek and Valerie produced one of the first websites dedicated to a single fine art concern. He also expanded the art of the horological exhibition. He made sure that every clock shown was photographed in detail, with the research undertaken equally detailed so that each piece taught us something new about it or its maker. The exhibit publications were joined by his other works, including *Mystery, Novelty & Fantasy Clocks; Carriage & Other Travelling Clocks;* and *Longcase Clocks.*

Time had been so important to Derek and now that he is no longer with us, he has left a legacy in the research and publications now available for others to enjoy. Derek leaves a loving wife, Valerie; son, Stuart; and grandson, Michael who will take some solace in knowing that nothing can be taken away from his achievements, his friendships, and his contribution to the world of horology. Derek Roberts was truly a one-off.

In Memory Of

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

Robert R. Foster given by Western Michigan Chapter 101

Hosea L. Jump given by Western Michigan Chapter 101

Hosea L. Jump given by George E. Lee-Michiana Chapter 26

Marion Krajewski given by Jim & Renee Coulson

Theodore "Ted" W. Stevens given by Nancy Till

Obituaries

Walter Best
183889 Palm Bay, FL

Thomas Cascio Jr.
48132 Feeding Hills, MA

J. Michael Coble
8126 Dexter, MI

T. Irven Eldridge III
256 Quakertown, PA

Hosea L. Jump
13135 Goshen, IN

David Kimball
130965 Towson, MD

Quentin King
26395 Spokane, WA

Stephen Kline
176269 Sarasota, FL

Thomas Klinedinst
109176 York, PA

Marion Krajewski
142317 Crown Point, IN

James Lianos
99075 North Haven, CT

Vern Playton
144786 Evergreen, CO

Derek Roberts
77610 Kent, UK

Jerry Rosati
30597 Tallmadge, OH

Antoine V. Simonin
38624 Neuchâtel, Switzerland

John Tanner
62778 Upland, CA

Armand Vial
6113 Grants Pass, OR

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. 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, .tiff, or .pdf 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.
- Deadlines for In Memoriam articles are the first of the month, 60 days prior to publication (e.g., the deadline for the March issue is January 1).
- Send text and image files to editor@nawcc.org.

Cryptogram

SEPTEMBER/OCTOBER 2024

A cryptogram is a word puzzle in which one letter stands for another. If you think X = O, it will equal O throughout this entire puzzle. The solution is trial and error. Puzzle solvers, please email your answer, name, and Chapter affiliation to mart@nawcc.org. All emails will be acknowledged (if you receive no acknowledgment, please resend). Mail your answers to NAWCC, Inc., Attn.: Publications Dept., 514 Poplar St., Columbia, PA 17512-2130. Your name will be listed in the next available puzzle section. **(Clue W = M).**

Q P V G Q P V J Y U E E Q P V J Y G

N X I F L T G: O V T N G, O X U G Q G, Q T X X G,

A E F K X T G; Y J U K G V T F J, O V Q X G

G Q X X E; Y T V J N G P U T N G Q F J X G Q F

W X U E; G E U M G H V J Y, T L V J G Q F K J,

U J N O X U Q G P V Y P W F L J Q U V J N F K J.

— C. T. T. Q F E H V X J, *Q P X* *P F O O V Q*

The Adventures of Sherclock Holmes – *Count As Count Can*

Dr. John Watchson walked into the sitting room of the flat he shared with Sherclock Holmes. "Sherclock," said Dr. Watchson, "we had quite a busy day at my Watch and Clock Club. Four of my friends at the meeting—Charlie, Juliet, Oscar, and Victor—started out the meeting with a total of 45 watches between them. During the meeting, Charlie bought two more watches, Juliet bought as many watches as she started with, Oscar sold two watches, and Victor sold half of his watches. (All purchases and sales were to club members other than the four friends.) At the end of the meeting, they noticed that they each had the same number of watches as the other three friends. Isn't that interesting?" "Yes, very," said Sherclock uninterestedly, "and do you happen to know how many watches each of them started the meeting with?" "Oh, umm, no, I don't happen to know that," said Dr. Watchson. "Well, I do happen to know that," said Sherclock, "and do close your mouth, Watchson, I'm feeling a breeze."

If you can figure out how many watches each of Dr. Watchson's friends—Charlie, Juliet, Oscar, and Victor—had at the beginning of the meeting, email your answer, name, and Chapter number to SherclockPuzzle@nawcc.org, and you will be mentioned in the next issue. *(Courtesy of Jim Guinn)*

Puzzle Answers

JULY/AUGUST 2024

Cryptogram Answer: No time like the present and no present like the time. **— Advertisement for the Ingersoll Dollar Watch from Robt. H. Ingersoll & Bro.**

The Adventures of Sherclock Holmes — One Clock, Two Clock, Three Clock, Four
There are many ways to solve this, but using the ace through queen from a deck of cards might help (just like Steve H.!). The solution that I got, from top to bottom, is 11, 1, 7, 2, 10, 3, 8, 4, 12, 5, 9, and 6. (A few people got very close, only switching the 11 and 12 boxes, which is what you would get if you don't put the second-to-last box back on the bottom of the pile.) This puzzle can easily be extended to much longer lists. For example, how would you arrange a deck of 52 cards so that the same process would yield each suit separately, ace through king? Can you think of a reverse process, starting with the desired ending order, which then puts the list into the desired initial order? Once again, I borrowed the idea for this puzzle from Boris A. Kordemsky's wonderful book, edited by Martin Gardner, *The Moscow Puzzles* (Dover Publications, Inc., 1992), which is a slightly altered, slightly corrected reprint of the work first published by Charles Scribner's Sons (1972).

Congratulations to the NAWCC members who submitted correct answers. The Chapter with the most solvers is 124. The names are listed below in the order received.

Cryptogram — July/Aug 2024

Deb Lockwood — Ch 55
Ralph Ferone — Ch 3, 47, 66, 159, 194, 195
Bill Yee — Ch 31
Neil Gallensky — Ch 160
Daniel Trick — Ch 23
Joe Cupurdija — Ch 34
George & Marietta Matto — Ch 31
John Morris — Ch 124
Robert Bulver — Ch 91
Paul Manfredo — Ch 37
Roger DuBroff
Terrence Turgyan — Ch 142
Michael & Alyson Powers — Ch 148
Art Kruppenbacher — Ch 13
Mike Graham — Ch 84, 148
Fritz Lotze — Ch 59
Dale Kiesewetter — Ch 12, 134, 194
Jim Bryant — Ch 22, 89
Chuck Edwards — Ch 124
George Winkle
Bill McKeown — Ch 124
Tom Chapell — Ch 6
Mike Essi
Stuart Gray — Ch 13
George S. Augustas — Ch 124
Dick & Dorothy Baker — Ch 13, 55
Gary Knapton — Ch 171
Dale Elliott — Ch 23
Cheryl Comen — Ch 2, 148
Barb Cline — Ch 29
John Acker — Ch 124, 139, 168, 195
Ron Gehauf — Ch 21
Jay Broad — Ch 14
Bob Feiertag — Ch 22, 23
Wayne & Sheila Fugett — Ch 23
Lori Janczura — Ch 107
Ed Sass — Ch 124
Bruce Davis — Ch 24
Ron Jensen — Ch 34
Pat Holloway — Ch 15, 22, 120, 124, 139, 195
Jim Wynne — Ch 34
Cornelius & Mary Frances Blevins — Ch 29
Chuck Montrose — Ch 84
Robert Linkenhoker — Ch 133, 136, 180, 190
Harry Firth — Ch 36
Richard Beach
Jim Hartog — Ch 119
Pam Hall — Ch 32
Randy Grunwell — Ch 24
Art & Sally Howland
Bart Polachek — Ch 19
Greg Ruda — Ch 6, 194
Paul J.I.M. Berntsen
David Stillwell — Ch 178, 195
Roland Pizzini — Ch 139
Gary Sertich — Ch 120, 134, 194
Bob Ballenger — Ch 31
Bill Shrum — Ch 71
Scott Boyd
Nancy Burke — Ch 37

Cryptogram — May/June 2024

Mike Essi
David Stillwell — Ch. 178, 195

Sherclock Holmes — One Clock, Two Clock, Three Clock, Four

Dale Elliott — Ch. 23
Tom Chapell — Ch. 6
Art Kruppenbacher — Ch. 13
Mike Essi
Mike Katz — Ch. 19, 154
Daniel J. Trick — Ch. 23
Ron Gehauf — Ch. 21
Steve Hossner — Ch. 31
Bob Feiertag — Ch. 22, 23
Jay Broad — Ch. 14
Chris Machin — Ch. 103
Chuck Montrose — Ch. 84
Jim Hartog — Ch. 119
Paul J. I. M. Berntsen
Tim von Reyn — Ch. 89
Mark Hughes — Ch. 59
Bill Shrum — Ch. 71
Ed Sass — Ch. 124

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NAWCC BUSINESS MEMBER

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Any and all horological watch and clock material! If you're retiring, read this ad! I am interested in purchasing one item or your complete shop, especially watchmakers' shops. I am currently looking for complete watches, PW movements, WW movements, balance staffs, stems, mainsprings, jewels, crystals, cases, crowns, screws, material assortments, bestfit assortments, horological books, lathes, clocks, clock movements, dials, cases, hands, weights, etc. I will travel anywhere in USA and Canada. I will not cherry-pick. I will buy your complete inventory. Discreet, prompt payment.
STEVE MITCHELL
Ph: 603-867-6277 or 603-224-6150 or email: steve@watchpartsrus.com

---

WANT: 4, 5, & 8-Bell ST Sonora chime clocks and parts.
TOM CHAPELL 734-546-4081
or email: tmchp@aol.com

Wanted Austrian Travel Clock or Carraige Clock, any condition.
JAMES BOWEN jbowen51@verizon.net
610-446-2664

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570-881-1854

WTD: Atmos and Anniversary clocks. PAUL RICHMOND
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or email: bob@proclocks.com

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svhorological@gmail.com

WANTED: Clock Collections.
PAUL RICHMOND
Ph: 336-213-4577 Email: oldtimekeepers@gmail.com

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HOROLOGICAL MATTER & OLD STOCK URGENTLY WANTED.
Wanted Collections and Accumulations. Old clock movements, long case, fusee, English, French, & American weight and spring. Also, pendulum keys, dials, cases, weights, and hands. Books and all horological matter, in any condition. I am NOT looking for the rare or one of a kind.
Instant cash payment. I will travel to you. Over 50 years' experience.
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email: albertex@aol.com

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STEVE MITCHELL 603-867-6277
Email: steve@watchpartsrus.com

OLD CLOCKS & CLOCK PARTS
HOROLOGICAL MATTER & OLD STOCK URGENTLY WANTED.
Wanted Collections and Accumulations. Old clock movements, long case, fusee, English, French, & American weight and spring. Also, pendulum keys, dials, cases, weights, and hands. Books and all horological matter, in any condition. I am NOT looking for the rare or one of a kind.
Instant cash payment. I will travel to you. Over 50 years' experience.
Call LARRY MORGAN
603-548-0976
email: albertex@aol.com

Gale calendar mechanism for drop model 2 parliament wall clock. My calendar mechanism is missing. Will purchase a complete clock or parts in any condition. WAYNE MACAVOY
215-872-7651 or 610-346-7382
joway240@msn.com

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WANTED: Gruen horological material, ephemera, and rare, unusual, interesting watches. If it says Gruen on it, please get in touch!!
JASON KASTNER
jason.kastner@gmail.com
txt/call 626-831-8446

WANTED: Fusee watches.
PAUL RICHMOND
Ph: 336-213-4577 Email: oldtimekeepers@gmail.com

WATCH COLLECTIONS WANTED
STEVE MITCHELL 603-867-6277
Email: steve@watchpartsrus.com

Rockford 16 size indicator parts wanted. Also any BLE or ORC dials for Howard Ball.
DON BARRETT 330-677-1914

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Call LARRY MORGAN
603-548-0976
email: albertex@aol.com

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www.jewelersliquidation.com
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Email: steve@watchpartsrus.com

Wanted: Door glass for Welch Wheeler Spanish American War Commemorative clock. Photo of door glass available by email or text. FRED FRIBLEY
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Any and all horological watch and clock material! If you're retiring, read this ad! I am interested in purchasing one item or your complete shop, especially watchmakers' shops. I am currently looking for complete watches, PW movements, WW movements, balance staffs, stems, mainsprings, jewels, crystals, cases, crowns, screws, material assortments, bestfit assortments, horological books, lathes, clocks, clock movements, dials, cases, hands, weights, etc. I will travel anywhere in USA and Canada. I will not cherry-pick. I will buy your complete inventory. Discreet, prompt payment.
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Ph: 603-867-6277 or 603-224-6150 or email: steve@watchpartsrus.com

Lucien Piccard Movement LP49B or LP48B with gold color hour and minute hand. Want the ones that come to a point, with black stripe down middlE
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lawcal@outlook.com

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The NAWCC reserves the right in its sole discretion to reject, edit, or otherwise refuse to publish any advertisement without recourse to the NAWCC. All advertisements received, whether from a member, organization, or other party, are received subject to this condition and without recourse to the NAWCC. Statements of opinion or fact appearing in the Watch & Clock Bulletin are accepted as the advertiser's own. While the NAWCC strives to ensure that only reputable advertisers appear in its publications, it assumes no responsibility for the accuracy and correctness of any statements of its advertisers. Neither the NAWCC, nor the officers, nor any of its employees will be responsible for any losses or misunderstandings arising from any of these listings.

The deadline for receipt of advertisements and payment is 3 p.m. Eastern time on the first of the month prior to the month of publication. The NAWCC reserves the right to edit and place all copy.

Alerts regarding stolen items are listed at no charge in one issue only.

Tommy Ticker Search

JULY/AUGUST 2024

In the July/August 2024 issue, Mr. Ticker is hiding beneath a table on page 389. Congratulations to these sharp-eyed readers who found him:

Douglas Mueller (IA)
Thomas Stocker (PA)
Daniel J. Trick (OH)
Scott Hill (NH)
Steve Hossner (OR)
Rich Pozniak (MI)
John E. Durbin (IL)
David Shaffe (VT)
Michael Simmons (OH)
Mary Frances Blevins (IA)
Timothy Squiggins (SC)
Dave Bressler (PA)
Doug Patterson (PA)
David Stillwell (GA)
Terrence Turgyan (NJ)
Vance Bryant (NY)
Gary Sertich (TX)

If you find Mr. Ticker's image as shown here, email editor@nawcc.org with your name and the page number and his location. Entries are due by the 1st of the month before publication. Good luck!

School of
HOROLOGY

The NAWCC School of Horology is located in Columbia, PA, and its educational programs serve to stimulate interest in and preserve knowledge of horological crafts.

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NAWCC School of Horology · 454 Poplar Street · Columbia, PA 17512 · 717.684.8261
Ken De Lucca, Education Director, kdelucca@nawcc.org

NAWCC Mid-Eastern Regional

Friday & Saturday November 1 – 2, 2024 No Sunday this Year

York Expo Center, 334 Carlisle Avenue, York, PA 17404

Hosted by Chapters 1, 158 and 193.

Pre-Registration Deadline October 18th, 2024

PLEASE NOTE NEW SCHEDULE

	Registration	TableHolders setup	Earlybird opens	Mart opens	Mart closes
Friday	**11:30 AM -5:00 PM**	**1:00 PM**	**1:30 PM**	**2:30 PM**	**5:30 PM**
Saturday	**7:30 AM**	**8:00 AM**	**8:00 AM**	**9:30 AM**	**5:00 PM**

All NAWCC regional rules and regulations apply and will be enforced. Only horological and closely related items, as determined by the mart chair, are permitted for sale. The Mid–Eastern Regional committee, the NAWCC INC., and the host chapters and their officers are not responsible for any loss, injury, or tort, during, or arising from the conduct of the regional.

Silent Auctions will take place throughout Mart hours. Table Registration is open to NAWCC members only.

Please type or print neatly and provide complete information for name badge

First Name:_____**MI**:_____**Last Name**:_____

Address:_____**City**:_____**State**____**Zip**_____

Email_____**Phone#**_____**NAWCC#**_____

Household member name (1 admitted free)_____**#children** (< 18 yr free)**** _____

Preregistration: **$35**/registrant ($40 at door) $_____

Early Bird: **additional $20** per registrant* $_____

8'Tables: $40/table*: # tables _____x **$40** =$_____

Electric hookup: $80 **$_____**

TOTAL DUE: $ _____

IMPORTANT Notes:

Requests for shared or adjoining tables must be submitted together

* **Not needed for table holders**

** **21yr or older must register** unless admitted as household member

*** tables $45 at the door.

LODGING: The Wyndham Garden Hotel, 2000 Loucks Rd., York, Pa. 17408 has reserved a block of rooms. Call **717-846-9500** and mention **National WATCH & CLOCK** to reserve a room **by October 1, 2024** to receive the convention rate of $114 per night. After that date the prevailing rate applies.

PAYMENTS: **Registrations will be recorded as payments are received.** Forms not accompanied by payment will be held until payment arrives.

USPS: Send your registration form along with a check made payable to "ME Regional" to: David Lauer , Chapter 1 Registration Coordinator, 49 Cornell Ave, Churchville, PA 18966-1362. Email: mideasternregional@gmail.com

National Association of
WATCH & CLOCK
Collectors, Inc.

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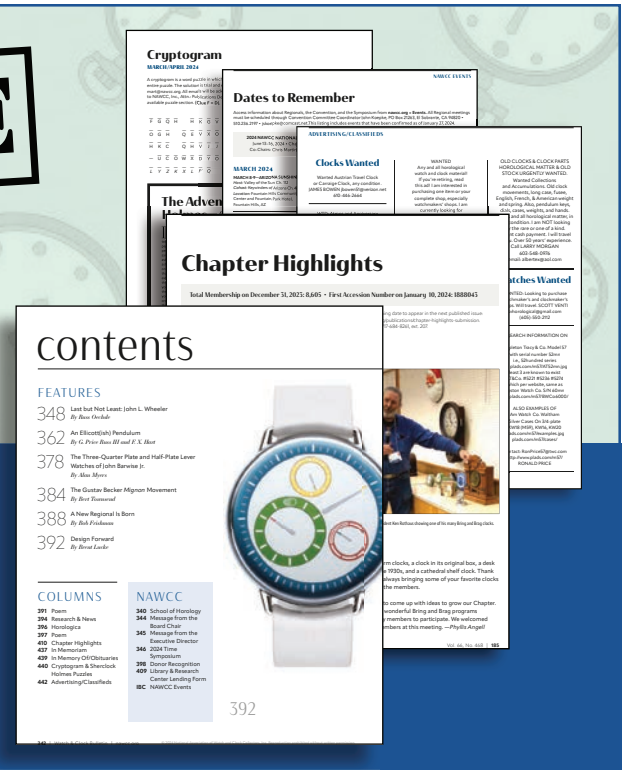
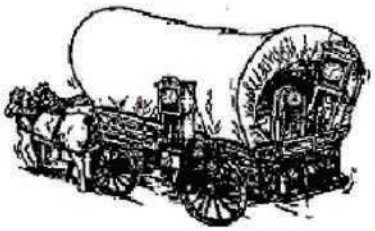


Don't miss any articles, Chapter news, puzzles, and event details in the *Watch & Clock Bulletin!*

www.nawcc.org/join

Questions? Call 717-684-8261 or email membership@nawcc.org



2024 MKOA Regional

November 15th - 16th

University of Central Oklahoma

100 N University Dr., Edmond, OK 73034
High University Center

Host: Sooner 74

Co-host: Ozark 57, Sunflower 63, Razorback 62

Hotels

Edmond Hampton Inn (855) 605-0317
Hilton Garden (405) 285-0900
Holiday Inn Exp. (405) 844-3700

Regional Highlights

- ✓ In Mart Hospitality
- ✓ Silent Auctions
- ✓ Exhibit and Educational Programs

Friday Nov 15th

Registration	8:00am
Mart Setup	8:00am-12:00pm
Mart Open	9:00am-5:00pm

Saturday Nov 16th

Registration	9:00am
Mart Open	9:00am

CANCELED

Tables reserved by Groups must be received in one envelope. Tables will be assigned on a first paid basis and must have display of horological items. Maximum of two registrants per table. Only horological items may be bought/sold in the Mart. Pre-registrations received by November 1st will be confirmed by email/mail. Only members of NAWCC, spouses, and family members under 18 will be admitted to the Mart. The NAWCC, its officers, members, and the MKOA Regional are not responsible for any loss, injury, or tort during this meeting.

National Officer _____ Star Fellow _____ Fellow _____ Old Timer _____

Name (print) _____ NAWCC # _____

Address _____ City _____

State _____ ZIP _____ Phone _____

Email _____

Spouse's Name _____ Children's Name(s) _____

(If Attending)

Registration(s) _____ @ $25.00 each $_____

(Registration at the door is $30.00)

(Children under 18 are free)

6 ft Mart Tables _____ @ $30.00 each $ _____

Total $_____

Make checks payable to: **MKOA Regional**

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Oklahoma City, OK 73162
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Dates to Remember

Access information about Regionals, the Convention, and the Symposium from **nawcc.org » Events.** All Regional meetings must be scheduled through Convention Committee Coordinator John Koepke, PO Box 21263, El Sobrante, CA 94820 • 510.236.2197 • jskoepke@comcast.net. This listing includes events that have been confirmed as of July 10, 2024.

2024 NAWCC WARD FRANCILLON TIME SYMPOSIUM
October 21–24, 2024 • Sturbridge, MA
Co-Chairs: Cathy Gorton and Howard Cohen

2025 NAWCC NATIONAL CONVENTION
June 19-22, 2025 • York, PA
Co-Chairs: Sherry Kitts, Lee Davis, Rich Newman

SEPTEMBER 2024

SEPTEMBER 14—MID-AMERICA*
Host: George E. Lee-Michiana Ch. 26
Cohost: Western Michigan Ch. 101
Location: Northern Indiana Event Center and Tru by Hilton, Elkhart, IN
National Representative: John Cote

SEPTEMBER 20–21—SOUTHERN*
Host: Creole Ch. 43
Cohost: Magnolia Ch. 41
Location: Copeland Tower and Comfort Inn & Suites, Metairie, LA

OCTOBER 2024

OCTOBER 11–12—NORTH COAST*
Host: Lake Erie Ch. 28
Cohost: Ohio Valley Ch. 10
Location: Best Western Plus, Strongsville, OH
National Representative: John Cote

NOVEMBER 2024

NOVEMBER 1–2—MID-EASTERN*
Host: Philadelphia Ch. 1
Cohosts: Keystone Ch. 158, Susquehanna Ch. 193
Location: York Expo Center and Wyndham Garden, York, PA
National Representative: Eliel Garcia

NOVEMBER 15–16—MKOA*
Host: Sooner Time Collectors Ch. 74
Location: W Canceled Gardens, Oklahoma City, OK
National Representative: Jeff Zuspan

JANUARY 2025

JANUARY 17–18—KENTUCKY THOROUGHBRED
Host: Kentucky Thoroughbreds Ch. 140
Cohost: Kentucky Bluegrass Ch. 35
Location: Clarion Hotel and Conference Center, Lexington, KY
National Representative: Sherry Kitts

JANUARY 23–25—SOUTHWEST CALIFORNIA*
Host: San Diego County Ch. 59
Cohost: Vista Ch. 136
Location: La Mesa Community Center, La Mesa, CA

FEBRUARY 2025

FEBRUARY 27–MARCH 1—LONE STAR*
Host: Lone Star Ch. 124
Cohosts: Southwestern Ch. 15, Five State Collectors Ch. 80, San Jacinto Ch. 139
Location: Mesquite Convention Center and Hampton Inn & Suites, Mesquite, TX
National Representatives: All Directors

APRIL 2025

APRIL 4-5—RIVER CITY*
Host: Heart of America Ch. 36
Cohost: Great Plains Ch. 58
Location: Miami County Fairgrounds and Paola Inn and Suites, Paola, KS

APRIL 10-12—SOUTHERN OHIO
Host: Buckeye Ch. 23
Cohost: British Horology Ch. 159
Location: Roberts Centre and Holiday Inn Wilmington, Wilmington, OH

MAY 2025

MAY 16-18—PACIFIC NORTHWEST*
Host: Pacific-Northwest Ch. 31
Cohost: Mt. Rainier Ch. 135
Location: Monarch Hotel and Conference Center, Clackamas, OR

AUGUST 2025

AUGUST 22-24—ALL TEXAS CHAPTERS*
Host: San Jacinto Ch. 139
Cohosts: Southwestern Ch. 15, Five State Collectors Ch. 80, Lone Star Ch. 124
Location: Marriott Houston Westchase, Houston, TX

**Public day offered*

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