



David Rittenhouse Tall Case Clock

by Ken McWilliams

I recently had the opportunity to restore an early David Rittenhouse tall case clock. It isn't very often that we have the opportunity to see his clocks outside of a museum let alone work on one. If you are not familiar with his name I urge you to look him up on the internet, he was a very important early American, clockmaker, astronomer, and scientist.

I'll give you a brief biography of him.

David Rittenhouse (Apr. 1732 - June 1796), astronomer, mathematician, and maker of mathematical instruments, was born at Paper Mill Run near Germantown, Pennsylvania, the son of Matthias Rittenhouse, a farmer, and Elizabeth Williams. Naturally talented in mathematics and mechanics, Rittenhouse constructed a model of a water mill at the age of eight, a wooden clock at about the age of seventeen, and a brass clock a short time later. He was fascinated with mathematics from his early years but, with little opportunity for schooling, was largely self-taught from books on elementary arithmetic and geometry. From a translation of Isaac Newton's Principia (1687) and other scientific works procured for him by his brother-in-law, he managed to obtain a sound knowledge of the physical sciences. Despite the limitations of his environment, Rittenhouse eventually developed a remarkable capability for theoretical and observational astronomy.



At the age of nineteen, Rittenhouse constructed a shop on his father's farm. There he designed and made additional tools required for his adopted trade of clock making. He produced and sold a number of tall case clocks, like the one in my article. He successfully experimented with the expansion of steel and wood for the development of a temperature compensated pendulum of his own design for regulating his clocks for greater accuracy. He continued making clocks, telescopes, and other instruments for 25 years, until the start of the Revolutionary War.

Among Rittenhouse's best-known achievements was the construction of two orreries of his own design. He completed the first orrery in early 1771. Although originally intended for the College of Philadelphia (now the University of Pennsylvania), it was purchased by the

College of New Jersey (now Princeton University). In the summer of 1771 Rittenhouse built a second orrery on the same principle; it was purchased by the Pennsylvania General Assembly for the College of Philadelphia. (An orrery is a clock that not only tells time, but also tracks our solar systems planetary movements.)

In addition to clock making, he was also very active in the revolution, conducted boundary surveys in the Middle Atlantic states and the Northwest Territory, succeeded Benjamin Franklin as President of the American Philosophical Society, and served as first director of the U.S. Mint.

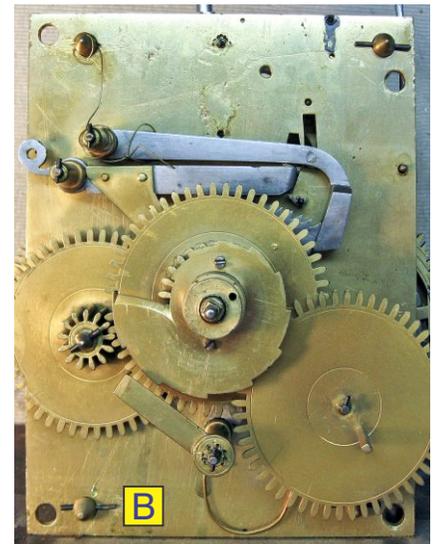
Now, let's look at the restored Rittenhouse clock. The case is made of walnut and characteristic of the Pennsylvania case makers of that period. It is in exceptional condition for something that is over 250 years old.

The movement is brass, 30 hour, time and strike, rack and snail, continuous chain, and is driven by a single weight. Rittenhouse built his clock making shop on his father's farm when he was 19 years old. (Around 1752) He never apprenticed with a clockmaker and was basically self-taught. In the beginning, he seemed to take design features from various clocks that he had seen primarily English clocks. Photo (B) shows the movement with the dial off.

I believe that this was one of his earlier clocks.

The following is what I base this assumption

on. If you look at photo (C) on pg 3) you can see that he didn't plan the engraving of his last name very well, because the last four letters are scrunched together after he realized that he was running out of space. There are many areas on the dial that show where his engraving burin slipped. These are indications that he had not yet mastered the art of engraving. His later dials are flawless.



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PRESIDENTS MESSAGE

By George Gaglini

I have seen firsthand what it takes to produce and present the Chapter 190 Annual Mart and frankly I am impressed, not only with those who put on the show this year but for all who have done the same in years past.

Held on April 19, 2015 at the Ventura Fairgrounds, this Mart was titled, "Seaside Antique Clock and Watch Show." As I sat in at several of the many planning meetings conducted by co-directors, Sue Gary and Donna Gaglini, over the past eight or nine months, I was sometimes exhausted just trying to keep up with the scope and range of details and arrangements they were handling. Fortunately, they have documented the specifics of their work and produced a guide that will be a model for future Mart Directors.

I think I speak for the Board and all members of Chapter 190 when I say "Thank you" to Donna and Sue, and to all the volunteers who helped them to put on a spectacular Mart. In addition to producing revenue for the Chapter, they served over fifty vendors and created an excellent showcase where scores of attendees could admire (and buy/trade) the clocks, watches, tools, books, and gadgets on display while experiencing what's so fabulous about being an horology enthusiast.

Our local Mart is one of many held annually around the United States by other Chapters. And, of course, there are the Regional Marts like the "Greater Los Angeles Regional" (GLAR) followed by the "National Convention." This Mart activity, conducted by hundreds of talented and dedicated volunteers, is a major facet of the National Association of Watch and Clock Collectors (NAWCC). And, as we applaud Sue and Donna for this year's spectacular "Seaside Antique Clock and Watch Show," I know the Chapter 190 Board and members will join me in also expressing appreciation and support for all who contribute to the goals of our organization, nation-wide and at NAWCC headquarters.

A Mart wrap-up and summary will be on the agenda of the next Chapter 190 Board and general meeting on Sunday, May 17, 2015 in the Students Center at Ventura Community College. Hope to see you there.

George Gaglini



Happy Birthday

May

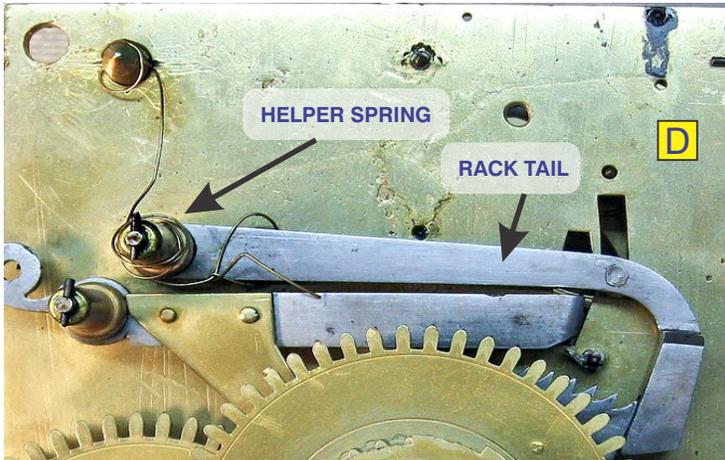
George Antinarelli, Ron Boogren, John Darby, George Gaglini, Mostyn Gale, Frank Huttlinger, Melvin Jensen, and, Julie Pallideno.

June

Matt Bonaccorso, Steve Cummings, Darrel Jones, Phil Keys, Harry Larson, Ron Maricich, Jean Markevich, Chris Martin, Tom McKnett, and Giorgio Perissinotto.



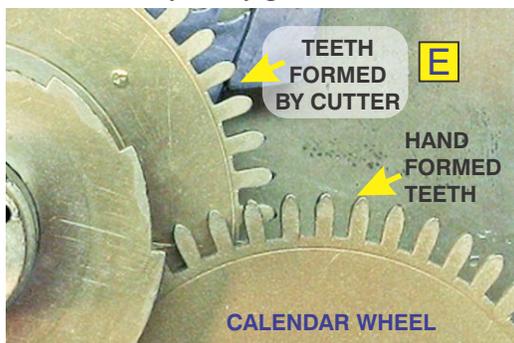
Photo (D) shows where some enterprising repairman added a helper spring to the rack hook. He didn't know where to attach it so he just left one of the



taper pins that holds the plate to the pillar and used that hole. On later clocks, Rittenhouse added a spring that was screwed to the plate for the rack hook. (Similar to the one used on the rack tail on this clock.) There are no extra screw holes on the plate of this clock. The rack hook is very heavy compared to newer clocks and by polishing the mounting post it works quite well just using gravity. Another indicator that this was early in his clock making career can be seen in photo (E).

He apparently didn't have very many gear cutters, because

the date wheel teeth were straight cut then finished by hand. If you compare it to the hour wheel, you can see the variations in the tooth profiles. Since this wheel is basically unloaded, and is only used to advance the date ring, it doesn't have to be very accurate.

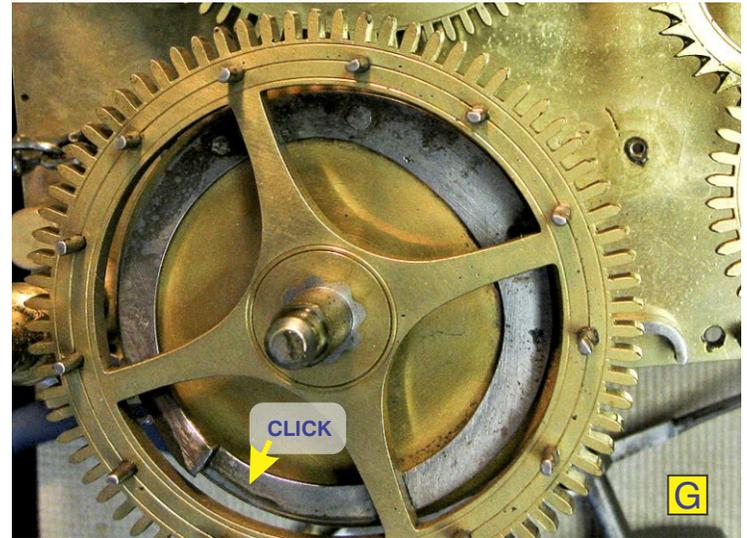


Speaking of the date ring, it is held in place by fixed guides instead of rollers. This is typical of English clocks of this period and was often the cause of clock stoppage as the friction increased with age.

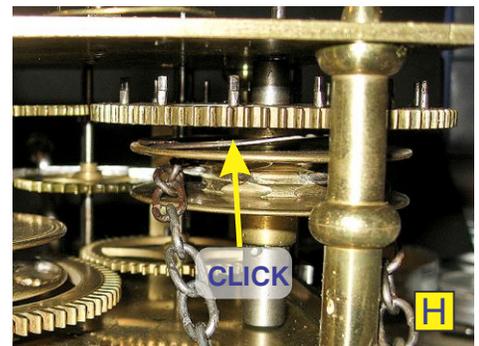
See photo (F). Because of this, later clocks used rollers or

a smaller date wheel mounted to a post to reduce friction.

We are all familiar with ratchets and clicks used on winding arbors but this clock handles that function a little differently. If you look at photo (G), you can see a steel ring riveted on one side to the sprocket and opposite the



rivets is a wedge. This is the click. The ring is bent away from the sprocket at the wedge. See photo (H). The main strike wheel spokes act as the ratchet. You would think that this would soon weaken the main wheel by wearing the spokes down. But surprisingly there is very little wear and I'm certain that these are all original parts.



In photo (I) you can see how the continuous chain is oriented. Note that it uses a wooden pulley. I believe that this is also original because it looks identical to photos that I have seen. You will also see that it still has its original lead weight. Most of these did not survive because they were confiscated during the Revolutionary War to be melted down and used to make musket balls. They were replaced with



cast-iron weights.

The cause of this clocks failure was due to a bad repair.



Photo (J) shows where a previous repairman soldered a stop pin into a strike train wheel. It was a poor job and eventually fell out. This allowed the strike train to run free.

The second part of the failure was the fly. See photo (K). It shifted on the arbor and struck a pillar breaking off one of the vanes. The fly had been previously broken and poorly



repaired as well. Both of these were properly repaired and should be good for another hundred years.

The dial is all brass with engraved numerals filled with black shellac. Based on other Rittenhouse dials that I have seen, the chapter ring was probably silvered originally.

As a side note, the framed item on the wall, to the left of the clock, is a sampler. Some of it is difficult to read but this much can be seen. It was made by Susanna Rittenhouse with the date of May ?? 1625. (Not sure about the five) It has the alphabet with no J but it does have the U. The J and U were added to the English dictionary in 1605, but change was very slow back then.

The clock is now running and is keeping surprisingly good time. One of the things that I like most about my involvement with clocks is that you never know what is going to show up next.

Working on Mr. Rittenhouse's clock that he made a decade before our country was even a country was very rewarding for me.



A small portion of the sampler

There is no question that putting on a Clock and Watch Mart is a lot of work! Chapter 190 wanted to continue the Seaside Mart, but the Board was having difficulty finding a Mart Director for 2015. So, driving home from the Del Mar Mart last year, George and I began talking about the great time we had and commented that we were impressed with the personal touches San Diego Chapter 59 had put into the show. All of a sudden, a scary thought entered my head, If Susan Gary would agree to co-chair the Chapter 190 Mart, we could tackle the job together. I contacted Susan quickly (before I had a chance to really think about my proposal) and she agreed!

We started our planning and meetings with last year's Mart Director, Ralph Napolitano, and seasoned members of the Chapter 190 Clock Club who had participated in the development of Marts in the past. We obtained a wealth of knowledge and assistance from them. We also met with the Fairgrounds Facility Manager and the Food Service Manager so we could understand how things really worked at the Fairgrounds. Susan and I soon realized that this could be the first Mart ever chaired solely by women! She and I decided to do some things a little differently than in the past, i.e., lowering the price of admission and vendor tables, providing coffee and pastries (including some great Les Rooker cookies!) for the set-up crew, and splurging on red table covers! Our goal was to produce a Mart where everyone had a good experience! Fortunately, our Board of Directors gave us full reign and support. (Thank you, fellows!)

Susan, being the capable, creative, and highly organized person she is, kept us on track. She was on top of our due dates, coordinated with our dynamic Publicity Director, Bob McClelland (Great job, Bob!), and with Jim Chamberlain for providing a great clock display (Thanks, Jim!). She also made all the signs and designed the Door Prize table. I handled the financial portion, including learning how in the heck to accept money from Paypal (Thanks, Dave!), registrations, confirmations, and general mouth piece.

Sue and I had wonderful volunteers helping us produce what we think was a really good Mart. With almost 100 participating vendors, we sold all the 88 tables and recorded around 250 public admissions. In addition to generating substantial revenue for Chapter 190, we received positive input from vendors who said they had good sales and appreciated the good crowd.

Sue and I agree that we are proud of the job we did in putting together the Chapter 190 Mart this year and did enjoy the challenge; hope 2016's Chair(s) enjoy the process too!

We would, again, like to thank, not only our husbands, Robert and George, respectfully, but the rest of the Board and the club members for their support and assistance.

See you at next year's Chapter 190 Seaside Antique Clock and Watch Show!

“Chapter 190’s Annual *Not So* Mini Mart” April 2015



Susan at the door prize table.



Unloading at the Mart.



Unloading at the Mart.



A beautiful multi-melody music box.



Like empire clocks? There were many at the mart.



Chris asks; How much for everything Marshall?

EDUCATIONAL OPPORTUNITIES

by Mike Schmidt

The **May** Chapter 190 Meeting
is May 17, 2015
Sellers may start setting up at 11:30
The Mart is open from 12:00 til 1:15
The Meeting starts at 1:15

"The History of The Pocket Watch"

Presented by Ferdinand Geitner

You may find that you didn't
know as much about these early
watches as you thought you did.

Bring a special clock, watch, or tool
of yours to share with fellow members
for show and tell

No Meeting in June

We close for Father's day.

Make sure you don't forget
him. If you can't be with him,
dig out the old photo albums.

This Month's Mini-Workshop Starts At 11:00AM

The workshop will be led by George
Antinarelli. This is an open forum workshop, so bring
your problem clock or watch and let the group help
you.

Don't let your clock problems baffle you,
come and let our experts confuse you.

Chapter 190 continues to offer our
popular "Introduction to Antique Clock
Collecting & Repair & Maintenance"
workshop. This 2 day workshop is open to
members, friends, and the public. The only
prerequisite for this workshop is "Interest &
Curiosity" in Mechanical Clocks. All tools,
movements, and knowledge will be supplied.

The next workshop is May 30th & 31st at the
Historic Dudley House Museum in Ventura.

For further information contact Mike Schmidt:
805 988-1764 or email: EagleCreekClocks@msn.com

The FSW 101 "Introduction to Basic Time & Strike" for
March was successfully completed. Congratulations to
instructor Lex Rooker and students: Clinton Cain, Dr.
Collette Christel, Rod Christel, Rion DuVall, Bill Hall,
Mel Jensen, and Rickey Rodriguez

*A FSW 102 "Time & Strike Spring Barrel with Rack &
Snail Strike"* is scheduled for 2 weekends, October 17, 18
&, 24 25. Contact the coordinator Walter Pickett for
further information 562 420 2536 or email:
pickettlakewood@aol.com

Other workshops will be scheduled as interest
develops. NAWCC requires 7 students for a workshop.
Please let me know what workshops or repair instructions
you desire... Contact Mike Schmidt at phone 805 988-
1764 or e-mail eaglecreekclocks@msn.com

Workshops Available:

FSW301 Beginning Pocket Watch, FSW 302 Wristwatch,
FSW200,201,202 Lathe
FSW101 Beginning Clock Repair, FSW103 Fussee &
Vienna Regulator, Dial Repair & Reverse Glass Painting,
& Case Repair

The *Platform escapement* workshop has been postponed
until the fall due to schedule conflicts.



CLASSIFIED PAGE

This page is dedicated to advertising for Chapter 190 members. It is, of course, free to members.

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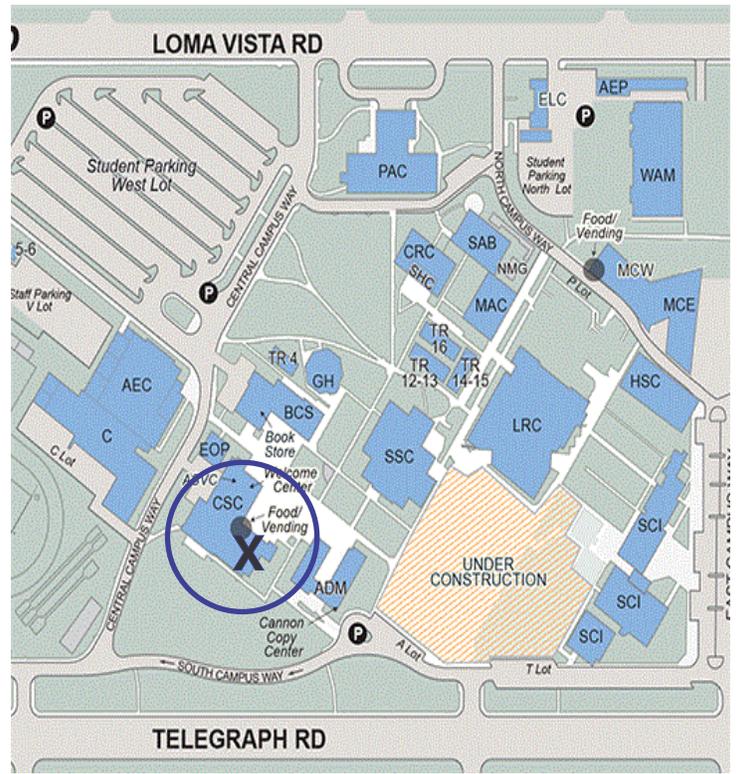
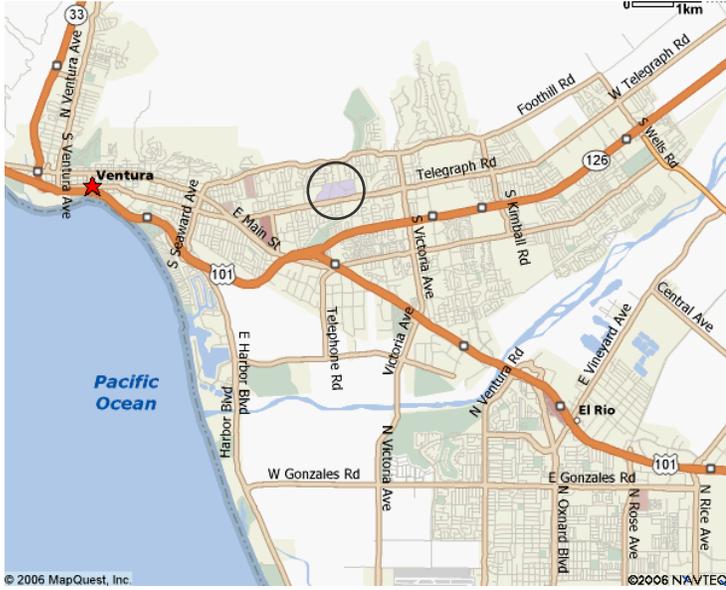
- Chronometer -

Hamilton 21 Marine Chronometer in running condition, with
inner box and gimbals; outer box not essential.

Please contact: Giorgio Perissinotto

E-mail: giorgio@spanport.ucsb.edu

The Chapter 190 meetings are held the third Sunday of each month. (No meeting in December)
 We will meet in the Campus Student Center (CSC) on the Ventura College campus. The CSC is located in building "B", east of the gym and



May - June, 2015 Issue

NEXT MEETINGS

MAY 17

**NO MEETING IN JUNE
 FATHERS DAY**



If Undeliverable return To:
 17738 Superior St. Unit 21
 Northridge, CA 91325

Chrono Times