



Keeping Time on the Santa Barbara Courthouse Clock

by Bryan Mumford

Now that restoration of the Santa Barbara Courthouse clock has been largely completed, we begin a new phase with it. We can now manage it instead of restoring it, to keep it running well and on time.

During the restoration, several additions of modern technology were made to the clock that will make this job easier. An optical sensor was mounted under the bob to drive a MicroSet clock timer that measures the pendulum as it swings. We have an Internet connection in the room, and I wrote a special version of the MicroSet software to display the clock data on a public web site where anyone can view it. Now that there are no workers in the room to disturb the clock, it generally keeps a very flat rate (except in windy weather!) You can view the current graph here:

<http://www.bmumford.com/mset/courthouse/graph.html>

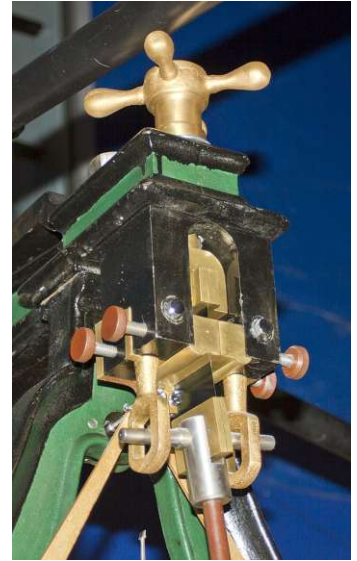
I also installed magnetic sensors under each strike and chime lever. Small neodymium magnets are stuck to the levers just above these sensors. When the chime cams release a lever, the magnets drop down and trigger the sensors at the same instant as the hammer falls against its bell replica. Each sensor triggers a digital sound circuit that plays a high fidelity recording of one of the bells from the carillon in Storke Tower at UC Santa Barbara. This allows us to hear Westminster chimes, played by the clock's original chime train, on bells from the UCSB carillon. A separate strike bell marks the hour.

I also installed a microphone in the clock room that plays the sounds of the clock to the Internet. We can now hear the clock tick and strike from anywhere in the world with an Internet connection.

Previously, the clock was monitored for accuracy somewhat casually. When someone on the street noticed that the hands showed the wrong time, a maintenance person would go into the clock room and make an adjustment. But setting the dials is not easy when you can't see them. There is a setting dial on the movement, but it's small and does not allow precise setting of the dials ... at least not in the range of seconds.



Earlier caretakers were also limited in their ability to adjust the rate of the clock. Adjustments were made by turning the big knob above the suspension spring to raise or lower the bob. This is a comparatively coarse adjustment. And the only way they had to evaluate the results of such an adjustment was to wait a few days until the dials showed if the clock was keeping good time or not.



Our recent additions to the clock give us much better tools to keep it on time. With the bell strike we have an audible indication of what time the clock shows. The clock has been adjusted so the strike bell sounds when the minute hand is exactly at 12. The Internet audio from the clock room allows us to hear the bells from anywhere, to know if the clock is on time without having to be there. But there's a delay for the sound to pass through the Internet, and it varies. It proved difficult to make accurate measurements of the bell timing over the Internet.

So I purchased a quartz watch with a "chime" function. This watch beeps every hour. I took the watch apart and tapped into the chime signal, bringing out two wires. I built a small circuit to merge the chime signal with the microphone in the clock room, and this combined sound gets streamed to the Internet. Now we can hear the bells strike in relation to the accurate beep of a quartz watch on the exact hour. I use software on my computer to record the bells, and I can measure this recording to see how early or late the clock strike is relative to the watch.

The image below shows a sound recording of the clock playing Westminster chimes and striking 2 o'clock. The first part of the diagram shows the four measures of the Westminster chime. This is followed by a small sound that is the unlocking of the strike train. Following this are



two closely spaced vertical lines. These are the double beeps of the watch chime.

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PRESIDENTS MESSAGE

By Mike Schmidt

Congratulations to Chapter 190 for receiving the 2012 "Chapter of the Year Award", and to members Alan Bloore, Ferdinand Geitner and Ken McWilliams who received the NAWCC prestigious "Fellow Award" in recognition of their outstanding contributions to NAWCC.

The Tower Clock Project was awarded a blue ribbon in the "Horological Crafts Competition" for "Chapter Institutional and Public Clock Restoration". Congratulations go to the Santa Barbara Tower Clock Restoration crew led by Mostyn Gale.

While I do not have any results for the overall convention to report, I observed many good things going on at the Convention. Several of our chapter members who had tables had very good sales. The Mart was a collector and buyers market. One of the best things at the convention is the interaction among all the attendee's. The opportunities to meet friends, put faces with previous contacts, make new acquaintances and gather horological information. This is all a big part of attending a convention.

It was great for all our members to meet and talk with our senior member from Philadelphia, PA Daniel Weiss. Dan had a table next to the Chapter table, and while I talked to attendee's about educational opportunities, Dan was busy selling pocket watches, NAWCC calendars and some books that he had donated to chapter 190. We thank you Dan for the \$98 donation.

One of my new acquaintances from the convention is Doug Minty president of "FIRST AUSTRALIAN" Chapter 72. Doug suggested that our Chapter share newsletters and or articles. I agreed, so you should soon find some interesting information and reading from the NAWCC members in Australia.

The program for this month is "A Musical Interlude". Dave Weisbart presents his program on Music in Clocks and Clocks in Music. He will talk about the various types of musical clocks, the works written for them, and musical references to clocks, both in music that imitates the sound of clocks and music that refers to clocks as part of a story line. This will be a great program

Come and enjoy a special lunch, mart, and fellowship as we celebrate the "Chapter of the Year" and three new "Fellows".

See you at the meeting. *Mike Schmidt*



Happy Birthday

Barb Barnes, Ron Palladino,

Steven Schechter, Mike Schmidt,

Kathi Sheffrey, and Kim St Dennis

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Finally you see the two strikes of the hour bell. In this recording there is 1.36 seconds between the watch beeps and the strike bell. The clock is therefore 1.36 seconds late of correct time.

Now that we have a clear indication of whether the clock is early or late we can manage the interval between the watch beep and the strike bell. If there is a discrepancy of several seconds we can correct it by overriding the escapement. If the clock has fallen behind, we can pull out a gravity arm and let the escapement slip a couple of beats to advance the dials and the bells. If the clock is too fast we can prevent the escapement from operating to let the clock fall back. Major corrections are still managed with the setting key for the dials.

For daily management of the rate we use the MicroSet graph to speed up or slow down the clock as needed. We do this by adding or removing small weights from the top of the pendulum bob. We have a set of calibrated weights in the clock room that we use for this purpose. These adjustments are needed because the clock has a will of its own. It runs faster or slower according to its mood, the wind, the humidity, and other factors.



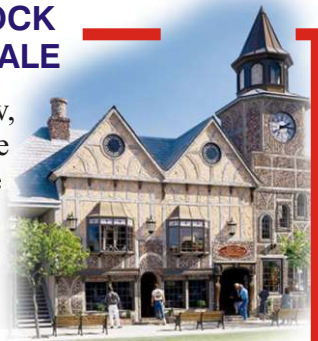
We have found that, once the clock is brought to time, adjustments to keep the clock on time are needed infrequently unless the clock is disturbed by an unusual event. Robert Ooley and Rodney Baker work in the Courthouse and can drop by the clock room to add or remove a measured amount of weight to correct the rate as needed. We can monitor the results with MicroSet and streaming audio over the Internet at our convenience. In this way we'll be using our remote monitoring tools to keep the clock running more accurately than it ever has before.

In fact, our new tools allow us to see the clock so well that we have observed a flaw that we never would have been aware of otherwise. It turns out that, every few days, the strike bell tends to drop a second. We can see it because the offset from the watch beep to the bell strike sometimes suddenly falls a second behind from one hour to the next. We have exhausted every reasonable explanation for this change that we can think of, and can find no cause for it.

These methods are working well to keep the clock on time. But the quartz watch is not perfect. It loses about a second a week itself. I'm working on a Rubidium reference oscillator to put in the clock room that will generate a beep at precise intervals of one hour. Our reference signal, if not the clock itself, will then be perfect.

MAJOR CLOCK & WATCH SALE

As many of you know, we sold the Solvang Antique Center to new owners a little more than two years ago. Since that time we've continued to sell our personal inventory of clocks, watches, and music boxes through the showroom.



Recently, the owners made a decision to move the Antique Center to a new location in Solvang. As a result, we've been making huge reductions in the prices on all of our personal merchandise that will not be moving to the new showroom.

This includes an enormous number of clocks of all types, from project clocks for the hobbyist collector to restored masterpieces for the serious investor. Inventory includes: pocket and wristwatches, automata, musical clocks, cylinder and disc music boxes, and pianos, American and European furniture, prints and paintings, lighting, and scores of decorative accessories. In many cases, prices are reduced to our cost or below.

The sale began on Saturday, June 30th and will continue through the summer. The photo is of the showroom at **486 First Street** where the moving sale will take place. Many NAWCC members are familiar with this showroom from their visits over the past two decades.

To inquire about specific clocks or watches in our personal inventory, we invite you to contact us by phone or email.

Ron and Julie Palladino
(Ron) 805-452-5700 or (Showroom) 805-686-2322
ron@solvantiques.com



The ladies that ran the consignment and silent auction table

THE 2012 NAWCC NATIONAL CONVENTION



George Antinarelli, Mike Schmidt, Chair Ruth Overton, Mostyn Gale and Ernie Jenson receiving crafts blue ribbon.



Mostyn Gale presenting the program on the Santa Barbara Courthouse Clock restoration.



Justin Miller with some of his Black Forest clock collection. (see March/April 2012 bulletin)



Mike Schmidt and Dan Weiss at the chapter 190 table.



The banquet for the 1961 NAWCC National Convention, held in Santa Monica CA. (Photo given to Ferdinand Geitner by customer)



Electric clock display provided by members of Chapter 133.



French clock display



Mike and Dan at our table.



Carriage clocks for sale.



Program on the hand made long case clock and crafts Blue Ribbon winner.



Pocket watches for sale.

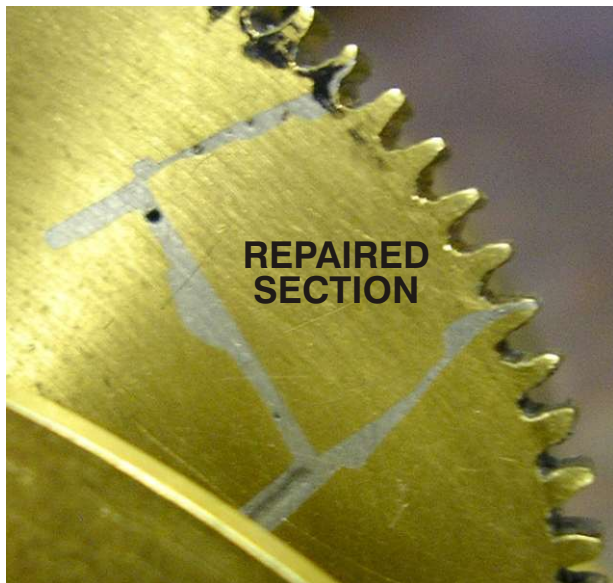
Tales From the Bench

by Ferdinand Geitner

The "Fixed" Clocks

When a clock is brought into the shop with the comment "it has been repaired but keeps stopping" the possibilities are endless. Wear and tear may still be present but one also has to examine every part doubly carefully for possible incomplete or incorrect repairs. The subject gets more tricky due to the fact that some clock designs are not mechanically perfect, or in more down to earth language, "cheaper compromises".

I came across such a piece recently, and after examining the movement, I spotted one problem almost immediately, and after pointing it out, it was quite obvious to the customer too. The customer had informed me that the movement had been a project in a repair class and he replaced some teeth on the barrel among other things. Checking that repair I was happy to tell him that it was a nice job replacing a section of teeth in the barrel, but that he had missed some teeth close to that section which were bent and needed replacing also. After one revolution the clock would lock up. (see picture below)

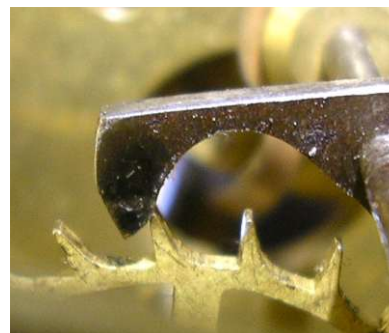


Another problem, in similar situations, is the replacement of bushings. American clocks can have a slightly misaligned bush and will still work because the large size of the teeth and lantern pinions are very forgiving. The same cannot be said for French clocks and Vienna Regulators, where the misalignment of just a quarter of a hole will result in excessive friction and stop the clock. The detection and repair of such a misaligned bush takes longer than the original repair and requires either a depthing tool to find the correct distance or a special bushing tool which can utilize the position of the bearing in the opposite plate for correct centering.

The next problem I found was the shape of the pallet. (see picture below)



The two most common escapements are the dead beat and the recoil, There are some that are somewhat in between (can't make up their minds) which affects the clean operation of the escapement. This one was a dead beat with locking on entrance side and a not-very-well-manufactured dead beat without clean locking on the exit side. So, if there was a little wear and excessive play, it may not lock properly all the time on the entrance side, which would stop the clock.



ENTRANCE PALLET

EXIT PALLET (LOCK)



This is just the beginning and I'll let you know if I find more interesting abnormalities. ■



CHAPTER 190 NEWS



In October, Chapter 190 will hold its regular monthly meeting at the Santa Barbara courthouse. Private tours of the Courthouse and the Clock Gallery will be provided, as well as lunch, all at no charge. This will be a special day, by invitation only, for chapter members, family and invited friends. Please mark Sunday, October 21st on your calendar for this special event.

Space is limited, and RSVP is a must so that we can plan seating and lunch. Contact Mike Schmidt to reserve space. Phone: (805) 988-1764
E-mail: EagleCreekClocks@msn.com

The next Meeting & Mart for Chapter 190 is July 15, 2012

Sellers may start setting up at 11:30

The Mart is open from 12:00 til 1:15

The Meeting starts at 1:15

PROGRAM

"A Musical Interlude"

Presented by Dave Weisbart

Music in clocks, and clocks in music.

SHOW & TELL

Your Convention Purchase

This Month's Mini-Workshop

At 10:30AM,

"Platform Escapements"

This will be an open forum, moderated by
George Antinarelli & Paul Skeels

THE WORKSHOPS ARE ALWAYS FREE!

*If there is a topic that you would like to learn about,
just mention it at the workshop. We are always looking
for good topics for the workshops.*

EDUCATIONAL OPPORTUNITIES

**The following workshops will be scheduled
for 2012 and 2013:**

Sherline Lathe Workshop - Intermediate tool making.
Instructor: Ken McWilliams (Date to be determined)

FSW 301 Beginning Pocket Watch Repair Workshop-
December 7-10, Instructor Ferdinand Geitner,
Contact Mike Schmidt 805 988 1764
email: eaglecreekclocks@msn.com

FSW 302 Beginning Wrist Watch Repair Workshop
-January 11-14, 2013, Instructor Ferdinand Geitner,
Contact Zaki Salahuddin 805 654-8552
email: phoenix@cimm.net

FSW 101 Beginning Clock Repair, Dates to be
announced, Instructor Lex Rooker
Contact Mike Schmidt 805 988 1764 email
eaglecreekclocks@msn.com

F510 Clock Camp I- This is 2 day course for students
who have completed the F101 and 102 and want a
Refresher course of that material

F511 Clock Camp II- This is a 2 day course for students
who have completed the 103 and 104 and want a
refresher course for that material

***Suggestions for chapter 190 workshops,
demonstrations, or programs are always welcome.
Contact any board member with your ideas.***



A few of the many swinger clocks for sale at the convention.

CLASSIFIED PAGE

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

SERVICES OFFERED

The Montecito Clock Gallery

Restoration, repair, sales of clocks and watches.
Ferdinand Geitner, mbhi, owner and operator
Now located at 1187 Coast Village road, unit 10a
Montecito (one block from old site)
(805) 565-9097

The Clock Gallery

George Gaglini

Serving Ventura County and More . . .
Expert Repair - Service - Restoration
Grandfather - Wall - Mantel - Marine - Atmos
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**Clock
Repairs,
Restorations
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Jorge Montoya

Complete Watch Service Center

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12 years as a Rolex technician. We maintain a
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E-mail: jorgemont2001@netzero.net

PACIFIC COAST CLOCKS

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Sales and Restoration of both new and antique
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Loren Miller proprietor.

4255 E. Main St., No. 15, Ventura, Ca. 93003

(Located in Firehouse Plaza at Main St. and Telephone Rd)

Monday through Saturday 10:00 to 6:00 pm.

Tel. 805-650-8800

FOR SALE

WATCH REPAIR TOOLS & MORE!

I will have a huge selection of watch repair
tools and other items from my latest estate
buy at the Chapter 190 meeting.

Dave Coatsworth
dave@daveswatchparts.com



MicroSet Timers for Clocks and Watches

Precision electronic timing tools for clock and
watch repair with many unique features. Prices
start at \$250. Full information is on the website:

www.WatchTimer.com

Mumford Micro Systems
3933 Antone Road
Santa Barbara, CA 93110
(805) 687-5116

WANTED

I just acquired a very nice wall clock case.
Unfortunately, that's all I have.
I need a movement, weights and pendulum.
The pendulum should be one meter and the
movement should have a true seconds hand.

Ralph Napolitano, e-mail: RalphNapolitano@msn.com
Ph: 805 509-2530

Antique French 2 or 3 dial calendar clocks.
Antique English 2 or 3 gear-train skeleton clock.
Loren Miller, **Pacific Coast Clocks**
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Located in Firehouse Plaza (Main St. & Telephone Rd.)
Tel. 805-650-8800

URGENTLY NEEDED, VISIBLE ESCAPEMENT MOVEMENT

French type-platform escapement (no pendulum)
Winding hole spacing of 38.9 mm, (1.53")
Repairable, other details available on request.

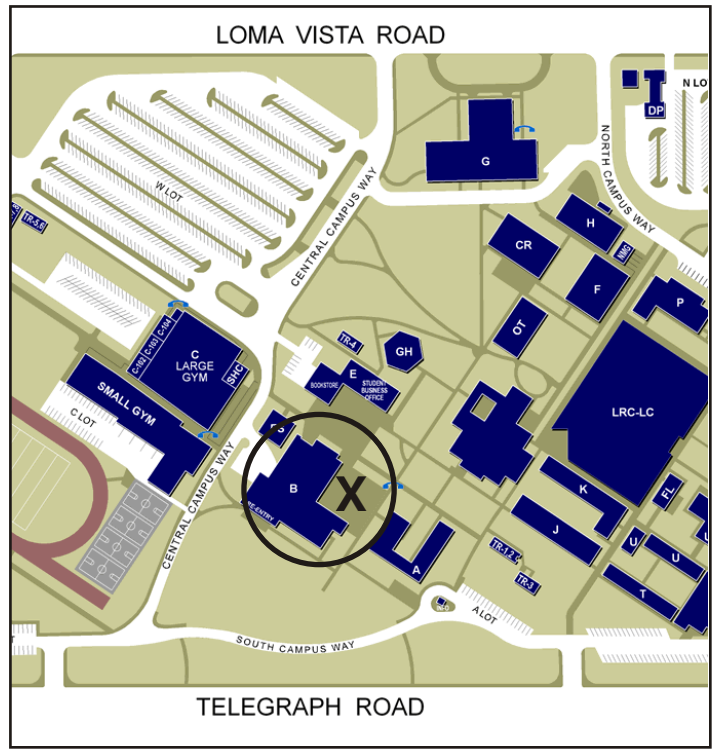
Bob Reichel, welchdoc@yahoo.com **Ph: 1-206-364-7374**

- 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 cafeteria on the Ventura College campus. The cafeteria is located in building "B", east of the gym and athletic field.



July 2012 Issue

NEXT MEETING
JULY 15



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