



The Courthouse Clock and The Japanese Earthquake

by Bryan Mumford

We now have full monitoring of the Santa Barbara Courthouse clock with a dedicated MicroSet timer. A special wide gap optical sensor is mounted below the bob to trigger on the 1/2" rating screw. The timer has a temperature compensated time base to keep the readings accurate on hot or cold days, and an atmospheric sensor records the barometric pressure, humidity, and room temperature with each reading. MicroSet also records the velocity of the pendulum with each reading, which is representative of the amplitude of swing. We typically capture a reading once a minute and display the current data graph on the official website at: <http://www.bisnoschallgallery.com>

We've been watching the clock data daily, and there's often something interesting to see or learn. I've been working on a separate website to share some of the more technical observations with the horological community. This website is located at: <http://www.bmumford.com/mset/courthouse>

One of the more dramatic observations took place on March 11, 2011. At 5:46 Coordinated Universal Time, a 9 point earthquake struck off the coast of Japan. Twelve minutes later the seismic shock waves rolled through Santa Barbara, 5,000 miles away, and shook our clock in the courthouse. The MicroSet graph recorded this disturbance, as shown in Figure 1. The first red arrow marks the arrival of the main earthquake just before hour 22 (10 PM) in Santa Barbara. The second arrow indicates a 7.1 aftershock that struck 40 minutes later.

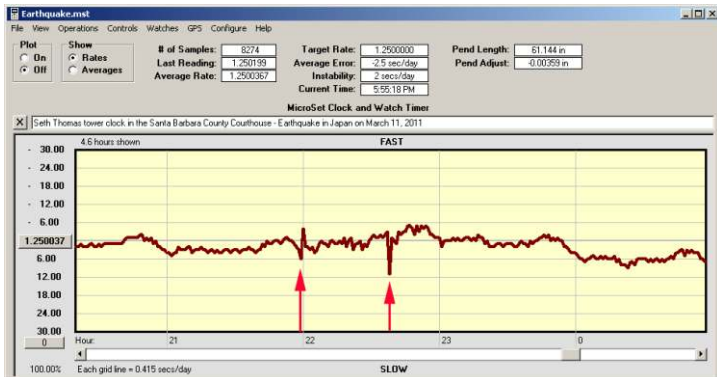


FIG 1

I'm sure no one in Santa Barbara felt the earthquake, but the pendulum in the clock acts as a sensitive seismometer. Figure 2 shows the actual seismometer reading from the

Earthquake Science Center of the USGS, with arrows to the corresponding points in the clock data.

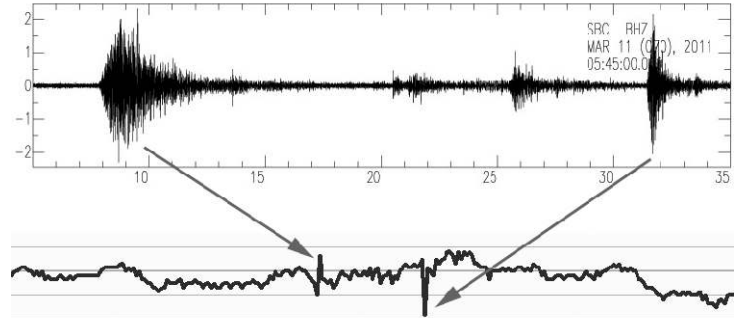


FIG 2

Though MicroSet can capture remarkable events, its primary use is more mundane. We commonly use the timer to adjust the rate of the pendulum. This is done periodically when we see a discrepancy, or after making some adjustment to the clock. If the pendulum must be stopped, starting it up again at the correct rate poses certain challenges. The rate of the pendulum depends significantly on how wide it is swinging because of circular error. This means that, when you start the pendulum, you need to get it swinging the correct amount or you can't set the rate. We can't wait for it to "settle down" because the massive pendulum may take hours to reach equilibrium. The clock is not in anyone's home or workshop, so we can't easily walk over to it and make an adjustment (though we can see what it's doing from any web browser).

The MicroSet timer records the speed of the pendulum with every reading of rate. This value can stand in for a relative measurement of the amplitude of swing ... when the pendulum is swinging wider, it passes through the optical sensor more quickly. When we start up the pendulum, we can adjust the amount of swing so we get the same velocity as before we stopped it. This means we've reached the same amplitude of swing, and the pendulum is in equilibrium with the impulse. Now we can adjust the rate and know that the amplitude won't drift and change it.

Figure 3 shows a graph of the rate and "amplitude" of the Courthouse clock pendulum. You can easily see that they are mirror images of each other. When the amplitude (top trace) is wider (higher), the clock runs slower (bottom trace.) This reveals the large amount of circular error in the clock, due to the large amplitude of the pendulum (over 13 degrees total swing.)

Officers and Board of Directors

PRESIDENT

Mike Schmidt

(805) 988-1764 • EagleCreekClocks@msn.com

VICE PRESIDENT & EDITOR

Ken McWilliams

(818) 718-8300 • internut@socal.rr.com

LEGAL ADVISOR

Paul Skeels

(805) 525-7325 • plskeelsatty@verizon.net

TREASURER

Alan Davis

(805) 659-7148

DIRECTOR • Historian

Richard Henderson

(805) 649-4138 • pobjude@pacbell.net

DIRECTOR • Annual Mart

Ernie Jenson

(805) 482-6021

DIRECTOR • Membership

George Gaglini

(805) 497-8381 • gfgaglini@adelphia.net

DIRECTOR • Education

Ferdinand Geitner

(805) 565-9097

DIRECTOR

Museum & Exhibitions

Mostyn Gale

(805) 962-9083 • saving_time@verizon.net

DIRECTOR • Public Relations

Laurie Conti

(805) 813-2216 • Remember_the_clock@me.com

DIRECTOR • Programs

Giorgio Perissinotto

(805) 637-9810 • giorgio@spanport.ucsb.edu

CHAIRMAN • Door Prizes

David Rubright

(805) 484-5580 • dgrubright@verizon.net

CHAIRMAN • Audio/Visual

William Robinson

(805) 642-7329 • whrobi@roadrunner.com

E-Mail For Newsletter:
internut@socal.rr.com

Web Site:

www.nawcc-ch190.com

WEBMASTER

David Coatsworth

dave@biswebdesign.com

PRESIDENTS MESSAGE

By Mike Schmidt

The Board of Directors of Chapter 190 encourages continuing horological education for all NAWCC members. Realizing that there may be a need for grants or scholarships, committees of three Board Directors have recently been directed to work on a yearly scholarship program for Chapter 190. This realization for assistance came about from a grant received from Philadelphia Chapter 1, of the NAWCC, by a 190 Chapter member over a year ago. I present to the readers another opportunity offered by Philadelphia Chapter 1, *2011 Scholarship Grants for Horological study*:



The Directors of the Philadelphia Chapter No. 1 cordially invite all interested and qualified individuals to apply for a Scholarship Grant to attend a recognized School of Horology in the U.S., including but not limited to the NAWCC School of Horology or an NAWCC Field Suitcase Workshop. Membership in the NAWCC by applicants is preferred but not required. One or more grant awards of up to \$500, are planned and may be used to cover tuition and registration costs for a single course of study at a recognized School or Suitcase Workshop. Schedules for NAWCC School of Horology classes and Suitcase Workshops are available at www.nawcc.org, as are listings of other recognized Schools of Horology in the U.S. Previous award recipients may be eligible for a second scholarship at the Directors' discretion.

Scholarship awards are given to promote the study of horology. After completing their course of study, scholarships awardees will be encouraged but, not required to help at their NAWCC home chapter meetings by promoting the educational programs of the chapter through lectures, workshops, and the like on horological topics and by other means. If they do not belong to a local chapter, they may also help with educational activities in other horological organizations.

The application may be downloaded from the Chapter 1 website. To find the website, go to www.nawcc.org, then select: Find a Local Chapter, United States Chapters, Pennsylvania, and Chapter 1, Philadelphia.

One of the most gratifying aspects of being a member of NAWCC is the generosity of its members. The organization fosters sharing of personal knowledge, experience, labor, and, sometimes, giving horological “deals” that you know are way under priced or are even freely given away. This generosity of horological sharing and help has happened or will happen to almost all Chapter members. And so this gratifying generous feeling gets received and passed from one member to another and one generation to the next. It becomes a happy obligation.

The Seaside Clock, Watch, and Jewelry Show” is this Sunday at the Ventura County Fairgrounds. All of the 84 tables are sold and all of the advertising was placed in the Ventura and Santa Barbara county newspapers. We are expecting a “LARGE” turnout for our sellers. The clock, watches, antique jewelry, and other antique collectibles have traveled from far away places to arrive for your viewing pleasure. We have the cities of *Alhambra, Arcadia, Arroyo Grande, Atascadero, Azusa, Bakersfield, Camarillo, Canoga Park, Chatsworth, Downey, Hemet, Indio, Los Angeles, Los Osos, Malibu, Oak View, Ojai, Olympia Washington, Oxnard, Paramount, Paso Robles, Reseda, San Juan Capistrano, Santa Barbara, Santa Cruz, Santa Maria, Santa Monica, Santa Paula, Simi, San Luis Obispo, Studio City, Thousand Oaks, Tujunga, Ventura, and Woodland Hills* represented by our sellers.

See you at the SHOW *Mike*

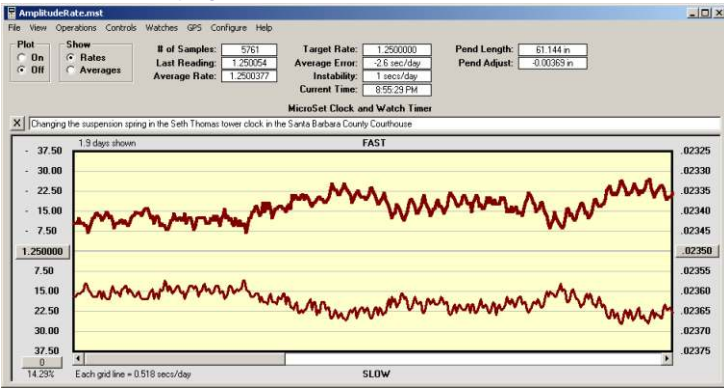


FIG 3

The MicroSet timer also lets us diagnose faults in the operation of the clock. For example, we have observed an unexpected oscillation in the rate (and amplitude) of the pendulum that has a one hour cycle. Figure 4 shows this oscillation. Each hour, on the hour, the amplitude (top trace) reaches a minimum. Thirty minutes later, on the half hour, the amplitude reaches a maximum.

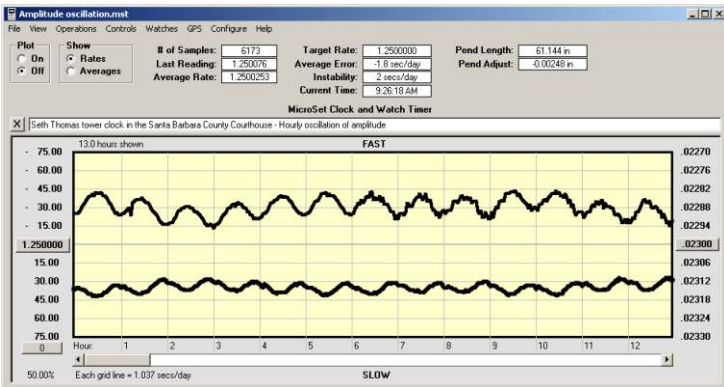


FIG 4

It turns out this cycle was caused by one of the clock hands. The minute hand "falls down" from the top of the hour to the half hour, and must be "raised up" for the next half hour. The hands were balanced before installation, but on close examination, we found that the minute hand on the southern dial had come out of balance. We disconnected that dial and the cyclic variation went away.

The electronic measuring equipment installed on the clock, and the website that lets us watch it, are a big asset in the maintenance of the clock. They also let us see unexpected events and explore them and to learn more about the Seth Thomas clock in the Courthouse tower and what makes it tick. ■



CHAPTER 190'S ANNUAL CLOCK AND WATCH SHOW

by Ernie Jenson

IT'S HERE!

Chapter 190's Annual Antique Clock and Watch Show is April 17. It's bigger, better, and all seller tables are sold out. Over eighty tables of clocks, watches, collectable custom jewelry, and more. There is something of interest for the entire family.

The Mart will be at the Ventura Fair Grounds in the Santa Rosa Building. It is the front and center building directly accessible from the main parking lot.

We have great door prizes again this year. Each attendee will receive a ticket for the drawings. Additional tickets for the drawings are available for \$1 each. (You choose what prize you want your ticket(s) to be entered.) At this time we have a family tour of the Channel Islands and one whale watching tour for a couple. In addition, we have a beautiful German regulator wall clock and a number of other great prizes.



The show is open to the public and we expect a good turnout as the event will be covered by the local newspapers.

We are offering a free service to the public much like the Antique Road Show. People can bring a clock or watch and we will have experts available to give critiques and repair advice if needed.

We will have a special display of museum quality clocks provided by Jim Chamberlain. Jim has an extensive collection of clocks and will be showing four or five of his more interesting clocks.

The fairgrounds also provides good food services, so no one will go hungry. ■



Happy Birthday

David Delfino, Donna Gaglini,
Cathy Gillogly, Ron Kubitsky, Loren Miller,
Jeff Slobodian, Larry Smith, & Lee Wade

THE WORLD'S MOST FAMOUS TIMEPIECE

by Henri Bonnet

Legend has it, that when Queen Marie Antoinette of France ascended the scaffold to the guillotine, she clutched to her breast a single item; a watch crafted for her by the most famous and accomplished watchmaker of all times: Abraham Louis Breguet. Queen Marie Antoinette was an avid watch lover who possessed an assortment of several Breguet timepieces. She cherished her watches above all other personal (and expensive) gifts she received from her husband King Louis the XVI, as well as from her numerous admirers.

In 1783, one of her close friends (and reputed lover), commissioned for her what became the most complicated and exquisite timepiece of its time: the Breguet 160 watch, also known as "The Marie Antoinette." The watch took around 40 years of painstaking labor to create. It was fitted with an impressive array of complications, which are still considered nothing short of miraculous, even by contemporary standards. The 18 carat gold case was 60 mm in diameter and featured a transparent front and back. The watch included a self winding mechanism, an hour and minute repeater, a shock absorber, temperature compensation, solar and lunar time displays, a stoppable central sweep second hand, a thermometer, a perpetual calendar, jeweled bearings, as well as a power reserve indicator, among a total of over 20 complications.

When the French revolution swept over France, no mercy was shown to its royal victims, and the unfortunate Queen was executed, along with her husband and countless others. This took place some 30 years prior to Marie Antoinette receiving what would certainly have been her most precious possession: the Breguet 160. Eventually the upheaval and bloodbath ended, but the fate and whereabouts of the "Marie Antoinette" watch was, by and large, lost to history. It is known, however, that the precious timepiece had been sold and resold several times to wealthy collectors. It eventually ended up in the Leo Mayer Museum for Islamic Art in Jerusalem.

In 1983 (200 years after its commissioning), the "Marie Antoinette" watch was stolen from the Jerusalem museum, along with some 190 other priceless horological masterpieces and artifacts. Watch lovers the world over were heartbroken. This spectacular burglary wasn't solved for some 25 years.

Luckily, as fate would have it, the perpetrator of this dastardly crime was eventually identified, after his death, and the "Marie Antoinette" timepiece was finally recovered. In 2007, it was returned to the Jerusalem museum, but it hasn't been displayed publicly ever since.



The Breguet 160 is considered to this day an irreplaceable and priceless masterpiece, the likes of Leonardo Da Vinci's Mona Lisa. Following the Breguet 160 disappearance, the chairman of the Swatch Group, Nicolas G. Hayek, who owns the Breguet brand, decided to recreate this famous timepiece, based on sketches and scant information in the company's archives. Even with all the sophisticated technology and knowhow available to modern watch manufacturers, replicating the "Marie Antoinette" watch was, "A hell of a challenge", to quote Mr. Hayek. The replica, priced at some \$30 million, has been exhibited in several locations, in Switzerland and France

as well as in the United States.

Watchmakers the likes of Abraham Louis Breguet are truly unique milestones in the history of watchmaking that are unlikely ever to reoccur. Abraham Louis Breguet was an exceptional engineering genius. In spite of his numerous inventions, he is known mainly for inventing the tourbillon escapement, which compensated for the effects of gravity. He supplied timepieces to French, English, Russian, and Spanish royalty, among others, as well as to Napoleon Bonaparte. Breguet's workshop was located in Paris, which at the time was the world's epicenter of science, industry, art, and fashion. The current revival of the tourbillon escapement in modern wristwatches is a tribute to



this single most prolific innovator who is rightfully considered by many the father of modern horology. No watch lover can ever forget the name of Abraham Louis Breguet. Neither can I. What do you think? ■

COLLECTING TIMEPIECES IN EUROPE

by *Giorgio Perissinotto*

The Chapter 190 Show-and-Tell has been a great opportunity for me to show a variety of clocks and timepieces I obtained after a lengthy stay in Europe. Though based in Madrid, where I was the Director of the University of California's Education Abroad Programs, I also traveled extensively in Europe, particularly in Portugal, France, Italy, Slovenia, etc. I have at least one timepiece for every region. I visited innumerable antique shops and auctions, but I must say that the best time was always at Flea Markets, Sunday Swap Meets, and village Vintage Shops. But, you need to take secondary roads and look for signs like *Brocante*, *Antiguedades*, *Anticuaria*, or the proverbial chair placed on the sidewalk close to the threshold of a non-descript shop.

Europeans are active eBay sellers and buyers, but you have to visit the country-specific sites and know at least a bit of the language. A Tower Clock is a Turret Clock in Great Britain, Turmuhr in German, Reloj de Torre in Spanish, Horloge Monumetal, d'Église, etc. in France, and so on. Here is a typical tower clock one can buy for about 3,000 euros and very similar to one I have, bought in Brittany.

At the time I was in Barcelona and was informed of the availability of an Odobey-Cadet in northern France. The clock, a two-train with massive wheels and sturdy frame had been at a smith's shop for repairs for years and the owner has passed on, leaving the widow with an unwanted artifact. I made an offer by phone, got a tentative acceptance and drove over 1000 kms to pick it up and barely fit it in my Ford Focus.



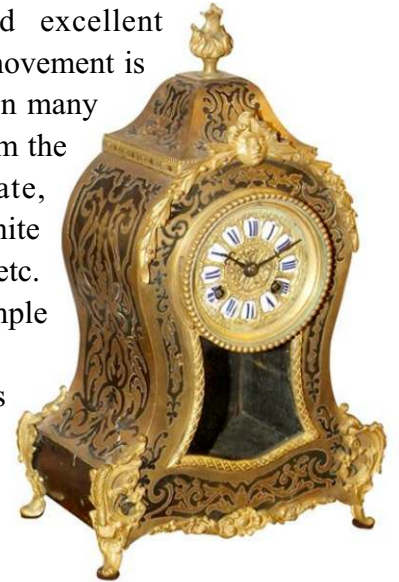
Great Britain, Germany, and Spain are also a good source of tower clocks, some of them in need of a lot of work. But many I have seen have been simply abandoned in the church or public tower and will never be rescued. I

remember ever too clearly climbing up stairs and steps to reach a clock that was installed two hundred years before. The wood or iron stair mounts had rotted with time and made climbing precarious, if not dangerous. In some instances the old dials and hands were now operated by an electric mechanism. In several countries there are modest government programs to compile a database of these valuable eyewitnesses of history.

France and Spain still have a seemingly unending supply of the Morez, Comtoise, and Morbier clocks. Most of them are of the ordinary types and were found in even modest homes all over Europe. The collector, however, is looking for movements with a calendar function, alarm, verge escapement, three or more bells, etc. I have a very rare one: three trains, three bells, pinwheel escapement, striking all four quarters, and central sweeping second hand. But I actually found this one in Mexico City a number of years ago. They are great timekeepers; the drawback being that they are housed in a very tall case or mounted seven or more feet from the floor, making the weekly wind a chore.

The classic and excellent round or square Paris movement is found everywhere and in many types of enclosures, from the common Belgian slate, wood inlaid cases, white marble, cartel mounts, etc. Here is a beautiful example of a Boulle clock.

Tall case clocks are also found in abundance and the selection is mind boggling. I have a number of movements with



no case and one in-the-case (the last picture) which unfortunately I had to leave behind. Shipping is always an issue and the prices tend to be prohibitive, unless you combine shipping personal effects, as I did, with your horology purchases. In the UK, however, there are a number of companies that will ship to the US at reasonable prices. Usually, there is no problem with customs duties and a good reason to use a shipping agent for larger pieces.

Prices vary widely and one must be prepared to haggle, which is an art in itself, particularly in Spain. ■

Tales From the Bench

by *Ferdinand Geitner*

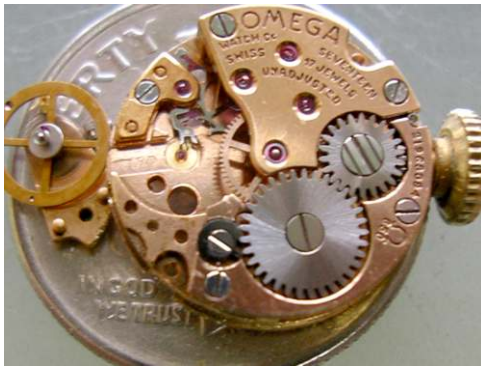
Size Does Matter

I'm often asked, "Which class should I take, the Wristwatch or the Pocket Watch class?" If one can service a wrist watch one can service a pocket watch but if you think that after being proficient at servicing a pocket watch movement, a wrist watch movement is just a smaller version, think again.

If the collector or budding professional needs to understand the workings and intricacies of a pocket watch movement, the pocket watch class is ideal, but if one intends to service and maintain a pocket watch and wrist watch collection, it takes a lot more work, study, and practice to acquire the skills.

The Pocket Watch class is an excellent introduction to understand small precision mechanics and learn the horological theory about watch escapements. Once one is proficient at working at this size of mechanism (which takes time and practice), one can progress to the much, much smaller wristwatches.

It takes a lot of patience and practice to acquire the dexterity to work on small wrist watch parts and use the smaller precision tools proficiently without damaging the mechanism or losing parts by holding them too tightly, etc. See the ladies Omega movement, right, which fits "easily" on a dime.



An interesting factor of that small movement is the hairspring which is very soft in relation to the weight of the balance wheel (rim) as shown in the picture on the pin, accounting for a slower "beat" (the back and forth motion of the balance.) In removing the balance with the bridge one has to be especially careful not to stretch and distort the hairspring. I normally don't hang this type of soft hairspring on the pin due to the danger of pulling it out of shape; I just wanted to demonstrate it to you. Compare this with the pictures of other watch balances.



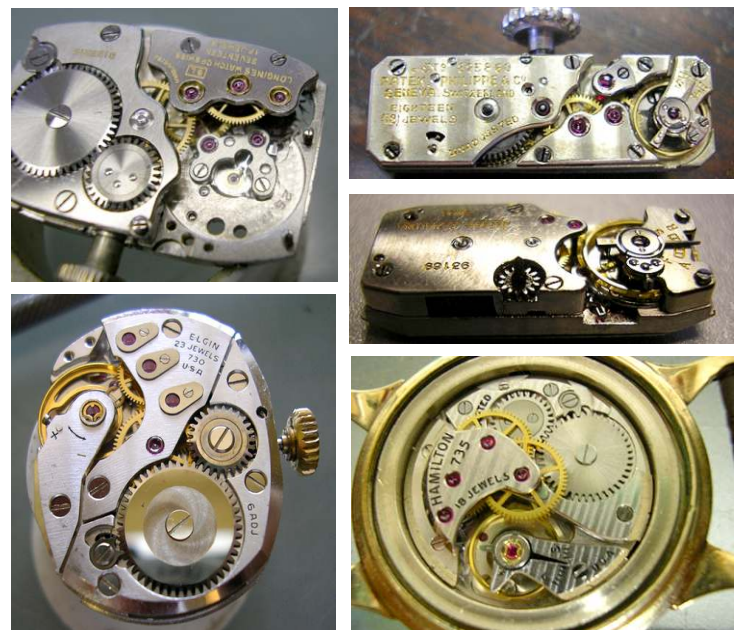
There are some "normal" watch movement designs which are straightforward to disassemble and reassemble, but at the same time there are a great variety of movement designs and layouts that most watchmakers may never see, so it's almost impossible to cover everything during a class lasting only several days. But one can present the function and purpose of the components which should enable the student to diagnose malfunctioning or worn parts and incorrect previous repairs, which are often the hardest to detect, and begin to practice manipulating small parts with confidence to eventually carry out a satisfactory service and repair.

My favorite phrase is that watchmakers are among the most religious people in the world as they spend a lot of time on their knees saying, "oh my God, oh my God", looking for an elusive, expensive part which was seconds ago held carefully in their tweezers. Good luck & keep practicing ■

Pocket watch movements



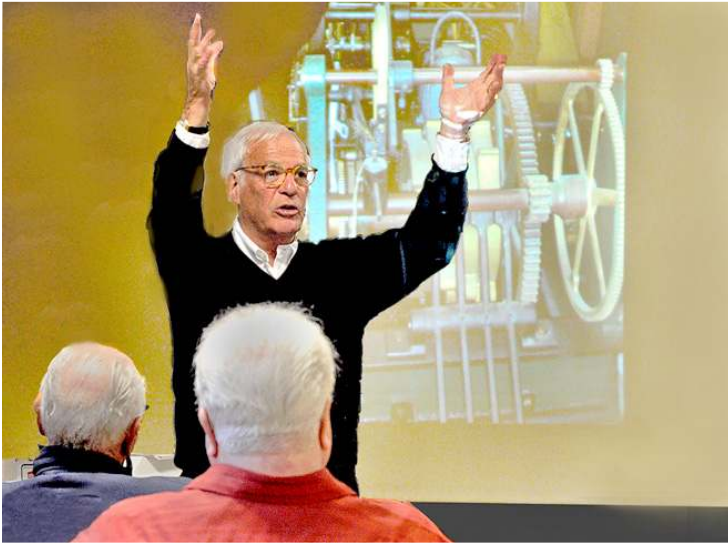
Wrist watch movements



THE EXTRA PAGE

FACES SEEN AT MARCH'S MEETING

Photos by Bill Robinson



Educational Opportunities

(We will present two beginning NAWCC workshops that have no prerequisites)

FSW 301 *Introduction to Basic Pocket Watch Workshop. Instructor Ferdinand Geitner*

This is a 4 day workshop offered April 29-May 2, coordinator: George Gaglini

805 647-6463 • email ggaglini@roadrunner.com

FSW 101 *Beginning Clock Repair*

This is a 4 day workshop offered October 7-10, coordinator Ralph Napolitano

805 509-2530 • email ralphnapolitano@msn.com

Chapter 190 is sponsoring
a One Day Workshop
on

IMPROVING YOUR PHOTO TAKING AND PHOTO EDITING SKILLS

INSTRUCTOR: Ken McWilliams

9:00am to 5:00 pm
SATURDAY, MAY 7th
at the Odd Fellows Lodge
in Santa Paula, Ca

**THE WORKSHOP WILL BE PART PRESENTATION
AND PART HANDS ON, SO BRING YOUR CAMERA.**

**THIS WORKSHOP IS FOR DIGITAL CAMERAS AND IS
AIMED AT PHOTOGRAPHING CLOCKS AND WATCHES
YOU WILL LEARN:**

- **HOW IMAGES ARE CREATED IN THE EYE**
- **HOW YOUR DIGITAL CAMERA WORKS**
- **THE IMPORTANCE OF PROPER LIGHTING**
- **UNDERSTANDING YOUR CAMERA'S SETTINGS**
- **HOW TO GET THE MOST OUT OF YOUR CAMERA**
- **HOW TO CORRECT PHOTOS USING PHOTO EDITING SOFTWARE. (WE WILL COVER THREE PROGRAMS, PHOTOSHOP, PHOTOSHOP ELEMENTS, AND COREL PHOTO-PAINT)**

Workshop fee: \$45. Space is limited, sign up early.

Contact Ken McWilliams to register or for info

(818) 718-8300 • internet@socal.rr.com

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

Serving All of Ventura County
Precision Repair - Service - Restoration
Grandfather - Wall - Mantel - Marine Clocks
House Calls • Packing & Moving
805-497-8381 or 805-647-0699
e-mail: theclockgallery@roadrunner.com

The Tic Toc Shop

**Clock
Repairs,
Restorations
& Appraisals.**

**Ken McWilliams
(818) 718-8300**

Jorge Montoya

Complete Watch Service Center

Repair & Restore all American & Swiss watches.
12 years as a Rolex technician. We maintain a
complete shop with all the latest equipment.
(562) 531-0545 • (562) 688-6171
E-mail: jorgemont2001@netzero.net

PACIFIC COAST CLOCKS

In business since 1977.

Sales and Restoration of both new and antique
clocks. Repair of all types of mechanical clocks.

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

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**

Antique French 2 or 3 dial calendar clocks.
Antique English 2 or 3 gear-train skeleton clock.

Loren Miller, **Pacific Coast Clocks**
4255 E. Main St., No. 15, Ventura, Ca.
Located in Firehouse Plaza (Main St. & Telephone Rd.)
Tel. 805-650-8800

- 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

- Watch Repair Tools -

I'm just starting out and need just about everything.
I would prefer to purchase an entire collection of old
watchmaker's tools.

Please contact:
David Clarkin **Tel: 805-988-4384**

**ANNUAL MART APRIL 17, AT
THE VENTURA FAIRGROUNDS**

NO MEETING AT VENTURA COLLEGE THIS MONTH

April 2011 Issue

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