



## Horology Trivia

by Giorgio Perissinotto



### Sundials For Beginners

Did you know that as recently as the beginning of the current year there was an impressive exhibit of sundials at the Louvre Museum in Paris? Here is the poster of the exhibit.

If you think that a sundial is an iron rod affixed to a slab with some markings around it, think again, as it was just about the only and most precise way of telling time for centuries, even millennia. It wasn't until the XVIII century that sundials began to be replaced by clocks, as these were becoming more dependable and accurate. Yet clocks were still checked against sundials and when in doubt about accuracy, sundials were the preferred standards.

The shadow-casting object, known as a gnomon, may take different shapes, from a long thin rod with a sharp tip to a straight edge. Sundials employ many types of gnomon. The gnomon may be fixed or moved according to the season. It may be oriented vertically, horizontally, aligned with the Earth's axis, or set in an altogether different direction determined by mathematics. I must admit that as I researched the sources for this article I was presented with mathematical formulas for the construction of the many types of sundials that were way above my elementary capabilities. Hence the title of this piece "Sundials for Beginners," the beginner being me.

Sundials differ in their portability and their need for orientation. The installation of the more accurate and complex dials requires knowing the exact local latitude, the precise vertical direction (e.g., by a level or plumb-bob),

and the direction to true North.

Sundials indicate the local solar time unless corrected for some other time. To obtain the official clock time, three types of corrections need to be made. First, since the orbit of the Earth is not perfectly circular and its rotational axis not perfectly perpendicular to its orbit, the sundial's indicated solar time varies from clock time by small amounts that change throughout the year. This correction -- which may be as great as 15 minutes-- is described by the equation of time. A sophisticated sundial, with a curved style or hour lines, may incorporate this correction. But simpler sundials are used most often, with a small plaque that gives the offsets at various times of the year.

Second, the solar time must be corrected for the longitude of the sundial relative to the longitude of the official time zone. For example, a sundial located West of Greenwich, England, but within the same time-zone, shows an earlier time than the official time. It will show "noon" after the official noon has passed, since the sun passes overhead later. This correction is often made by rotating the hour-lines by an angle equal to the difference in longitudes.

Last, to adjust for daylight saving time, the sundial must shift the time away from solar time by some amount, usually an hour. This correction may be made in the adjustment plaque, or by numbering the hour-lines with two sets of numbers.

A sundial at a particular latitude in one hemisphere must be reversed for use at the opposite latitude in the other hemisphere. To position a horizontal sundial correctly, one has to find true North or South. The same process can be used to do both. The gnomon, set to the correct latitude, has to point to the true South in the Southern hemisphere as in the Northern Hemisphere it has to point to the true North. Also the hour numbers go in opposite directions, so on a horizontal dial they run anti-clockwise rather than clockwise. Here is a sundial from the Southern Hemisphere, in Perth, Australia.



Continued on page 3

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## PRESIDENTS MESSAGE

By George Gaglini

Among the many synonyms for the word enthusiasm are: energy, glow, fervor, interest, joy, passion, spirit. These qualities certainly can be used to describe Chapter 190 members. When I look back at the meetings we have had this year, I can recall these feelings and expressions in new and old members alike. Some travel over 200 miles round trip to be at the meetings. Others lug loads of clocks, watches, and other horological items to be displayed for sale or for show and tell.

The energy increases at every meeting as coffee goes on early followed by the carrying in of tons of food and tasty deserts for the best five dollar lunch in town. Seating areas are set up for mini-workshops, round table discussions, and programs. Audio-visual equipment, computers, screens and displays are carefully arranged and the interaction begins. At last month's meeting, 35 members and 9 guests attended and three of those guests became members on the spot. Several days later, another three new members signed up making our total membership over 160, according to Membership Director Ernie Jenson. Talk about enthusiasm.

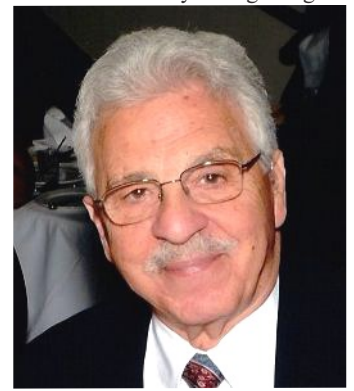
November sixteenth will be our last meeting for 2014 because we traditionally skip a meeting in December in honor of the holiday season. Next year Chapter 190's activities will be punctuated by direct participation at the Greater Los Angeles Regional (GLAR) with an exhibit on Railroad Time and another chapter 190 Mart in April at the Ventura County Fairgrounds.

Around that time, we will also learn the results of the election for NAWCC Board of Directors. Chapter 190 member, Robert Gary, announced his candidacy last month and has received support from many Chapter 190 members. Robert has a video on youtube where he explains his platform and what he would like to accomplish as a member of the board. If you would like to learn more about Robert use this link: <http://youtu.be/B1D8JBtjkDk>.

One thing that has always dumbfounded me is the fact that California has more members than any other state, yet we have the lowest percentage of members voting. This explains why we haven't had a west coast representative on the board in a very, very long time. Come on members, whether you vote for Robert or not, PLEASE VOTE!

In summary, it's been another great year for Chapter 190 and 2015 promises to be just as dynamic and joyful. Enjoy your upcoming holiday season and, come January, hold on...because it's going to be another great, enthusiastic ride! See you at the meeting.

*George Gaglini*



## Happy Birthday

### November

**Dave Coatsworth, Ferdinand Geitner, Jim Gilmore,  
Ernie Jenson, Keith Lord, Bryan Mumford,  
Peter Racette, Norman Ray, George Sessions,**

### December

**Gene Corriden, Dutch Frou, Gary Girod, Robert Ingham, Neil Kuns,  
Steven Marks, Bob McClelland, Bill Robinson, Dan Weiss**





(Above) An equatorial sundial in the Forbidden City, Beijing. The gnomon points true North and its angle with horizontal equals the local latitude.

### A Sundial Curiosity: The Noon cannon

A noon cannon, sometimes called a “meridian cannon”, is a specialized sundial that is designed to create an 'audible noonmark”, by automatically igniting a quantity of gunpowder at noon. These were novelties rather than precision sundials, sometimes installed in parks in Europe mainly in the late XVIII or early XIX century. They typically consist of a horizontal sundial, which has in addition to a gnomon a suitably mounted lens, set up to focus the rays of the sun at exactly noon on the firing pan of a miniature cannon loaded with gunpowder (but no ball). To function properly, the position and angle of the lens must be adjusted seasonally.

There is much, much, more about sundials than one would suspect. There is a North American Sundial Society <http://sundials.org> with an impressive archive of photos of Sundials in every state and of several foreign countries. And, of course, there is a British one just as impressive <http://sundialsoc.org.uk>.

If you are now hooked on sundials, here is how to make a Sundial in 7 (easy) steps



*the type of sundial found in many public places*

1. Place a 2-by-3 foot flat piece of cardboard or wood in an outside spot that has full sun exposure. Be sure to choose a spot where, if you ever need to move your sundial, you can turn it. This will help ensure the sundial's accuracy.

2. Punch a 7-inch (17.75cm) stick or dowel through the bottom center of the cardboard so that it's standing upright. If you are using flat wood, drill a small hole in the bottom center of the wood for the stick or dowel to fit into so that it's standing upright.

3. Mark the first hour. Put a stone or thumb tack at the top of the flat cardboard or wood surface where the shadow of the stick falls at the top of the hour in which you are beginning the recordings.

4. Set the timer to sound off at the top of every hour.

5. Write the number of the hour next to the stone or thumb tack each time the timer sounds. For example, when the timer sounds at 6 o'clock, write a 6 next to the stone or thumb tack.

6. Repeat this process until 13 hours are marked on the cardboard or wood. The pattern of stones or thumb tacks should have appearance of a semi-circle when completed. It should end with the same number it begins with. For example, if your sundial begins at 7am, it should end at 7pm. *Depending on the time of day you begin, it may take a couple of days for your sundial to be complete. If you begin late in the day, stop when the sun goes down and begin the next day when the sun rises, marking each hour until you reach the first mark of the day before.*

7. Test your sundial by comparing the time it indicates to the actual time. Make adjustments if necessary. ■

For visual aids on how to make it, go to: <http://www.wikihow.com/Make-a-Sundial>.

For a full array of sundials: <http://www.sundials.co.uk/projects.htm>.

## Show-n-Tell



More photos on page 5.

# Tales From the Bench

by *Ferdinand Geitner*

## My Waterproof Watch

The synonyms of “proof” in the dictionary are: fact, evidence, and “proof against” states impenetrable by, not to be overcome or shaken by, especially against water or bullets”.

But as we all know, water does sometimes get into “waterproof” watches and people have complained amid filed lawsuits when their expensive high grade watches started to leak. So after many years the US Federal Trade Commission, in the late 1960s, found it to be a misleading term and the industry changed the definition to the more accurate “Water Resistant” and developed a scale of how “water resistant” the watch really is by giving it an ATM number.

REALLY? That word is a question in itself. The ATM (Atmospheric pressure) number is based on the static pressure of air or water applied to the surfaces of the watch case. The case consists of the glass or crystal over the dial face, the case back, which is either screwed down or snapped on, one exception are cases which are formed with the case and back being one unit and the movement has to be removed through the front. The last point of entry is through the crown and pendant which can be just fitted with one seal and slide on and off, several seals with a screwed down crown or a hinged lever pushing the crown and seal onto the case.

The definition was “static” pressure, so in the shower a fast stream of water on a spot is not static. Below is a scale used to help judge various conditions.

Waterproof	Yes	No	No	No	No	No
3 ATM	Yes	Yes	No	No	No	No
5 ATM	Yes	Yes	Yes	No	No	No
10 ATM	Yes	Yes	Yes	Yes	Yes	No
20 ATM / 30 ATM	Yes	Yes	Yes	Yes	Yes	No

So the questions are :

- What does the ATM correspond to ?
- Is waterproofness valid for life?
- How can I tell if my watch is still waterproof?
- How often should I have my watch waterproof tested?

One would think that a watch rated at 30 M (meters) equivalent to 99 ft of depth under water should be quite safe for a little swim. But look at the picture! It indicates one should not even take a shower !!!

Another factor to consider is the material of the seals which have wide range of temperature and chemical resistance, ie. PTFE, Nitrivile, Neoprene, EPDM rubber, flurocarbon (Vitron), Kalrez, Silicon.

Some seals are affected by deodorant and perfume chemicals. Age breaks down the flexibility and therefore the ability to seal tightly.

Waterproofness is not valid for life!!! As previously mentioned seals deteriorate under different conditions, crystals get knocked and sometimes (barely noticeable) cracked or chipped.

It depends on the use and the owner's lifestyle how long the seals will last. Another factor is: owners forget to screw

down a crown properly or they take a battery watch to a quick change place which charges less but does not usually have the equipment or supplies to reseal the watch properly.

A watch should be waterproof tested at least once a year to be sure or after every battery change for a quartz watch. If for whatever reason the watch does leak, it will usually show some fine condensation on the inside of the glass. I tell my customers that if they get it to me within 24 hours I can usually save it. But any longer, and the rust takes over; imagine metallicly clean, unprotected, steel immersed in water. (food for rust).

There are several methods for waterproof testing. The Swiss Company Greiner makes an amazing machine which checks the deflection of the glass under pressure. No deflection indicates leaking, and it can be tested on the counter in front of the customer without removing straps or bracelets. It has one drawback, it does not tell where the leak is.

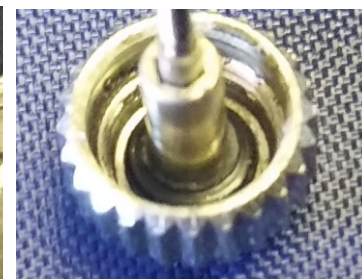
Another method is a chamber where the watch hangs above water and the chamber is pressurized to a predetermined pressure. A button drops the watch into the water (hopefully distilled & clean) and the pressure in the chamber is released. If the watch leaks it was pressurized before the drop and bubbles will come out of the watch showing exactly where it is leaking, but no water will go into the watch as the pressure equalizes.

Some years ago Tissot made a watch completely in plastic to be really waterproof. Just blow it dry !!

### Happy swimming



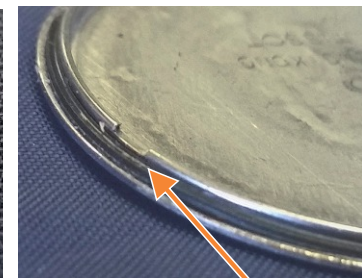
Screw-in crown. O'ring seal



Normal push-in crown



Screw-on back. Seal



Snap-on back. Seal



One piece case. Screws attach bezel, with crystal, and seal to the case.

Seal

by Ernie Jenson

### Jim Sturgeon



Jim joined Chapter 190 in early 2014 and wasted no time in getting involved. He has already completed the Two Day Clock Training Class and the 101 Suitcase Training Class. He assisted Lex Rooker in the Two Day class. There is no question that our extensive training classes are bringing new blood into our club and they are mighty welcome.

Jim and his wife Lynn have two daughters, Lianne (17) and Aubrey (12). He was born in Santa Barbara but attended high school in Thousand Oaks. He graduated from dental school in Atlanta, Georgia, and served in public health throughout the Everglades in Florida. Not only does he have a doctorate in dentistry but he also has a B.A. in biological sciences, and a B.A in film making.

First he served as a dentist in public health in the Florida Everglades and then in the mountains above Taichung, Taiwan. He served in the military as a US Public Health Service dentist. Using his film training, he made dental technical films for the Center for Disease Control. He had his own private dental practice in Goleta from 1987 to 2003. He has recently retired.

Jim's hobbies include languages, especially Chinese, French, and Spanish and then, of course, travel, especially to the countries where those languages are spoken. A major hobby is the restoration of Victorian Homes with special attention to (electrified) gas lighting fixtures and door and window hardware. The restoration also involved old clocks (of course)!

He has been restoring an 1887 Victorian home and its furnishings including several nineteenth century clocks which had ceased to run (years ago). He joined the NAWCC and our club to improve his knowledge in horology and to learn how to repair his own clocks. ■



## EDUCATIONAL OPPORTUNITIES

by Mike Schmidt

The **November** Chapter 190 Meeting  
is November 16, 2014

Sellers may start setting up at 11:30

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

The Meeting starts at 1:15

### **“Packaging & Shipping Horological Items”**

*Presented by Jim Cipra*

This month we will learn how to properly  
package and ship horological items.

Bring a special clock, watch or tool  
of yours to share with fellow members.

**There will not be a meeting in December  
The next meeting will be Jan 18, 2015**

## Welcome New Members

**Rod & Collette Christel**  
from Lompac

**Tim & Charlotte Harriman**  
from Huntington Beach



**Mark Harmeling**  
from Santa Barbara

**Ed Maldonado**  
from Bakersfield

**Bruce Biersborn**  
from Simi Valley

**Fred Petrucci**  
from Goleta

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

The workshop will be led by Ken McWilliams and will cover the use of the Microset timer. This workshop is for people who are new to the Microset, and for people who are contemplating getting one. We will also cover the various options available, including the software for the more advanced users. If you have a Microset, bring it along to the workshop.

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 *“An Interest & Curiosity”* in Mechanical Clocks. All tools, movements, and knowledge will be supplied.

The next workshop is *January 24th & 25th* at the Historic Santa Barbara County Courthouse and includes a tour of the *“Bisno-Schall Clock Gallery”*. For further information contact Rodney Baker at (805) 963-2494 or email: [Rodney.baker@cox.net](mailto:Rodney.baker@cox.net)

The *FSW 201 “Fundamental Skills for Lathe and Clock Repair”* workshop for September 26th-29th was successfully completed. Congratulations to instructor Lex Rooker and students: coordinator Tom Ferkel, Chris Martin, Stephan Watts, Bob Thomas, Brad Herman and Phil Keys.

The *FSW101 “Introduction to Basic Time & Strike”* workshop for October was successfully completed. Congratulations to instructor Lex Rooker and students: Jim Sturgeon, Ken Brown, Pat Fitzgearld, Norman Ray, Daryl Smithson, Fred Petrucci, Charlotte Harriman, Ed Maldonado and coordinator Walter Pickett,

A *FSW 301A “Advanced Pocket Watch”* is scheduled for January 23th-26th in Ventura. The instructor will be Ferdinand Geitner. The coordinator is David Perez – for further information contact David at 805 967-1947 or email: [davidperez57@cox.net](mailto:davidperez57@cox.net)

Future Field Suitcase Workshops (FSW) for 2015: *FSW101 Introduction to basic clock repair*, and a *FSW102 Closed Barrel and Snail Escapement*. Other workshops will be scheduled as interest develops. Please let me know your workshop interests. Contact Mike Schmidt, phone 805 988-1764 or e-mail: [eaglecreekclocks@msn.com](mailto:eaglecreekclocks@msn.com)

A chapter 190 workshop is in the planning stages for 2015. A 2 day *“Platform Escapement Repair”* workshop. This will cover the better jeweled escapements as well as the Hermle floating balance. If you are interested in this workshop contact Ken McWilliams. (818) 718-8300 or: [internet@socal.rr.com](mailto:internet@socal.rr.com)

*“Action is the Foundational Key to All Success”*

Pablo Picasso

# 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  
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### **WATCH REPAIR TOOLS & MORE!**

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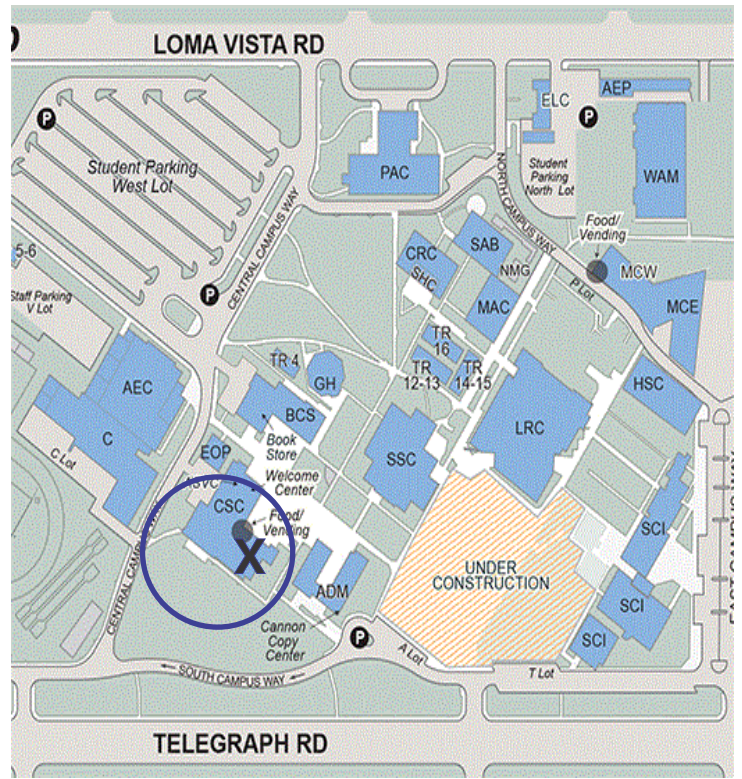
*Antique French* 2 or 3 dial calendar clocks.  
*Antique English* 2 or 3 gear-train skeleton clock.  
Loren Miller, **Pacific Coast Clocks**  
4255 E. Main St., No. 15, Ventura, Ca.  
Located in Firehouse Plaza (Main St. & Telephone Rd.)  
**Tel. 805-650-8800**

### **- 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](mailto: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



Novembert - December, 2014 Issue

# NO MEETING IN DECEMBER

NEXT MEETINGS

**NOV 16**

**JANUARY 18**



If Undeliverable return To:  
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 Northridge, CA 91325

**Chrono Times**