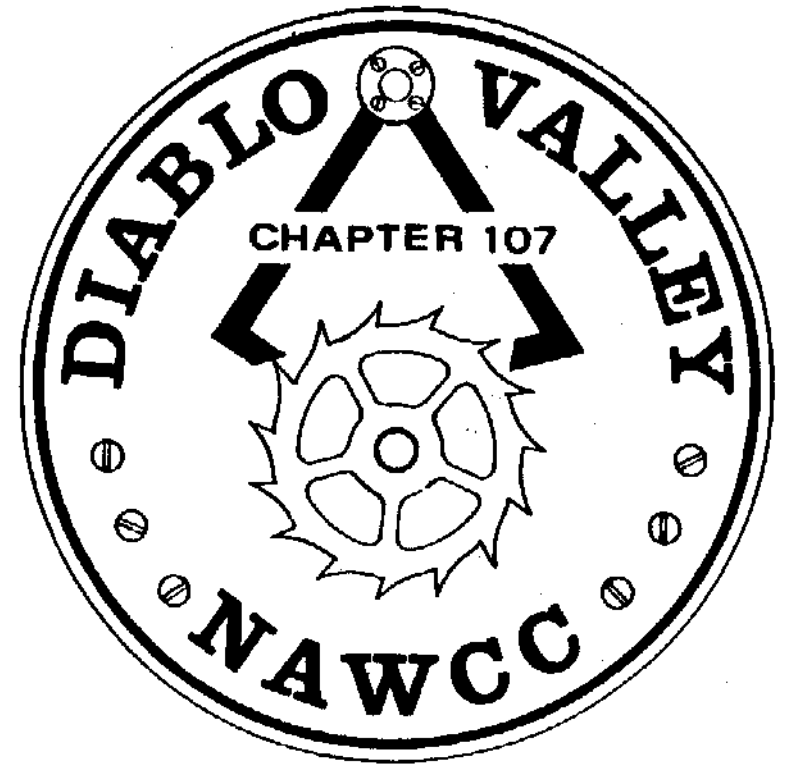


BULLETIN



June 2006
Volume 165

DIABLO VALLEY

Chapter 107

National Association of Watch and Clock Collectors

Chapter Established March 5, 1978

"Accent on Education"

OFFICERS

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Meeting Notice

June 11, 2006

Mart 11:30, Meeting 12:30

Room B-8
Acalanes Adult Center

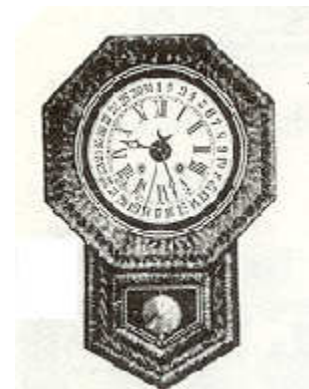
OCTAGON CLOCKS
by
Dorian Clair

Octagon clocks as opposed to drop-octagon school clocks have balance-wheel escapements. Bring examples from your collection to share and discuss.

These



Not These



President's Message

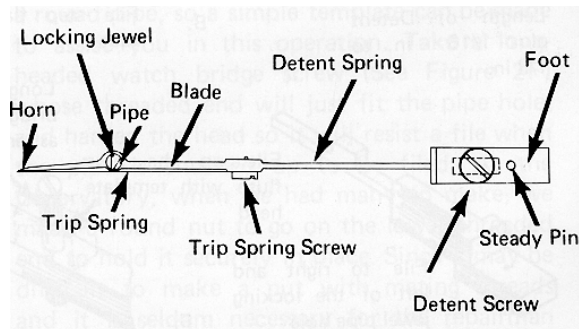
This month's program is a presentation by Dorian Clair on "Octagon Clocks." Dorian asks those owning an octagon clock to bring it to the meeting for "show and tell".

I received a reminder on the Silver Dollar Regional to be held at the Nugget Hotel in Sparks, NV on August 27-28. Advance Registration closes on July 15. Check your MART for registration forms.

Jack

TERMINOLOGY

In a chronometer the **spring detent** locks and releases the escape wheel when the unlocking jewel on the balance interacts with the trip spring. In a lever watch, the escape wheel is released each time the impulse jewel passes the lever. Typically this is 5 times per second. In a chronometer, the unlocking jewel unlocks the escape wheel only when the balance is moving in one direction. When moving the other way, it passes the trip spring without releasing the balance. For this reason the second hand moves only twice per second even though the movement is running at 4 beats per second. Your editor has a 5 beat per second chronometer. It is much harder to read than the more common 4 beat variety. The following figure showing the parts of the spring detent is from Whitney's *The Ship's Chronometer*.



Editor's Section

I want to start by thanking Bob Wharer for the excellent article on heat treating of steel (p. 6). You may recall that this subject came up at the April meeting. I can say from my day job that the color indication of temperature really works. Even without the use of fancy instruments (pyrometers), with practice it is possible to estimate temperatures to about 50 C. I also want to thank Walt Hubrig for telling the story of his favorite clock.

As Bob points, out heat treating is a complicated business. Whole books have been written on the subject - some very scientific and some empirical. It seems that in horology everyone has his own prescriptions for how to do it. I have one old book that discusses inserting heated parts into a sliced potato to quench them and achieve ideal hardness. It does not discuss whether one should then eat the potato.

Once again in deference to member contributed articles, I am postponing my article on Bargello clocks and symbols for the hours. Keep it up folks. Let's see how long we can put off my article..

Did your April issue of the *Bulletin* have the wrong cover? It appears that a few copies were assembled with the wrong outer cover. The inside (pages 2 and 15) were correct. If you have one of these, hold on to it. Someday it may be highly sought after by collectors.

Recently Bernice and I visited Filoli. I am pleased to report that all the tall case clocks that I saw in the house were running. I did not see all of the ones that members of our chapter restored, but those that I saw seemed to be in good order.

It is time to plan for our annual picnic. Bernice and I would be happy to host it again if that is the wish of the group. If someone else wants to volunteer, that will be alright, too. Start rounding up items for the auction.

Price

HARDENING & TEMPERING OF STEEL

Steel is iron combined with carbon and other alloying elements (Mn, P, S, Si, Cu, Cr, Ni, V...). There are hundreds of different steel alloys. In addition, a specific heat treatment schedule is necessary to optimize the properties that are required in each particular application. In clock making, we are seldom concerned with the exact alloy or precise heat treatment of steel parts. The parts that do require maximum performance from the metal, such as main springs and high-wear parts, are purchased and have already been heat treated. For most of our work, we can classify steel in “Goldilocks” terms, ... TOO HARD ... TOO SOFT ... or ... OK.

Hardness of steel is determined mainly by its carbon content.

<u>% Carbon</u>	<u>Examples of typical usage</u>
0.05 to 0.10	Sheet, tubing, wire nails
0.10 to 0.20	Screws
0.20 to 0.35	Structural steel, rebar
0.35 to 0.45	Shafts, light duty machine gears
0.45 to 0.55	Large forgings heavy duty gears
0.60 to 0.70	Set screws, strong bolts
0.70 to 0.80	Cold Chisel
0.80 to 0.90	Punches & Dies
0.90 to 1.00	Reamers, broaches,
1.00 to 1.20	Twist drills, lath tools
1.20 to 1.30	Files, razor blades

This table is greatly simplified. Considerable overlap of usage occurs and the effect of other alloying elements has been ignored.

Steel with a carbon content greater than 0.5 % is generally **annealed** before machining. This consists of heating it red hot (1000° F) and then allowing it to cool slowly. This results in a softened material which can be worked easily. After machining, the steel is **hardened** by again heating to a high temperature and then cooling quickly by dipping it into water or oil. This produces the maximum hardness possible for the particular alloy. The result is frequently too brittle for use. Therefore

one must **temper** the steel by heating it to a lower temperature and allowing it to cool to room temperature in air. If this is done properly, the result is a hard material which is not brittle.

In industry, the temperatures and times for heat treating are accurately specified and measured. In the clock repair shop, we don't have the equipment for measuring temperatures or heating & cooling rates. Instead, we depend upon the color of the glowing metal for an indication of the higher temperatures and the surface color that is produced at lower temperatures. The tables below are useful for heat treating small steel parts without temperature measurement equipment.

TEMPERATURES FOR TEMPERING STEEL

Color produced on a previously polished surface.

Faint straw	382 C	400 F	Hard but possibly brittle material
Straw	267 C	440 F	
Deep Straw	246 C	475 F	
Bronze	277 C	530 F	
Purple	282 C	540 F	
Full blue	310 C	590 F	
Light blue	339 C	640 F	Soft but tougher material

INCANDESCENT TEMPERATURES

All values are approximate. Different “authorities” have been noted to differ by as much as 100 C for similar verbal descriptions.

Red, visible in the dark	400 C	725 F
Red, visible in the daylight	525 C	975 F
Red, visible in the sunlight	581 C	1077 F
Dark red	700 C	1292 F
Faint / dull cherry-red	800 C	1472 F
Cherry red	900 C	1652 F
Bright cherry-red	1000 C	1832 F
Dark orange	1100 C	2012 F
Bright orange	1200 C	2192 F
Yellow-white	1300 C	2372 F
Bright white	1400 C	2732 F
Dazzling white/ bluish white	1600 C	2912 F

Bob Wahrer



Clarence Kobel (speaker)

April 2006 Meeting

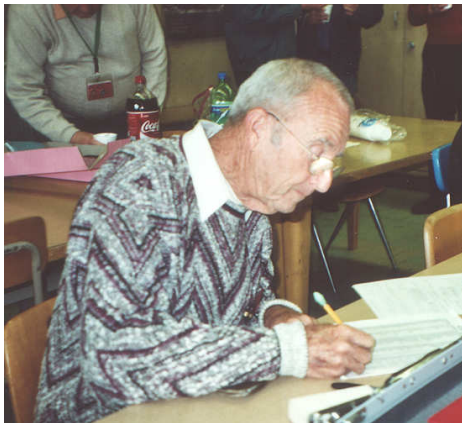
Photos by Sophia Gardner



New Members
Bob Thomas and William Baldwin



Lois Naye



Roy Holman



William Baldwin, Ross Smith, Bert Bradley



Florene Turkington
(getting louped?)

FAVORITE CLOCK

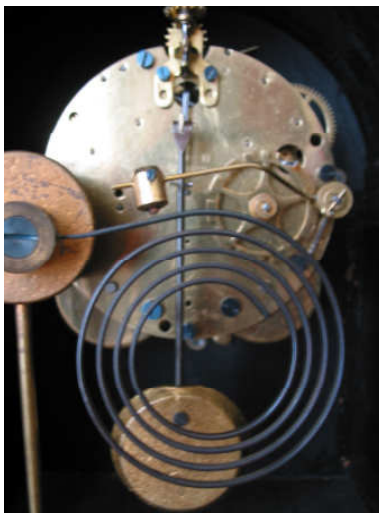
Since my emphasis has been on clock repair, my favorite clock is the first one I took to Royal English's class when I started in 1986. The clock was a wedding gift from my mother in law, when we married in 1958. It ran all those years without any attention.

It is a Seth Thomas city clock named "Genoa". On the bottom it is stamped "5091A (Seth Thomas code for January 1905). In Tran Duy Ly's book *Seth Thomas Clocks and Movements*, it is shown on page 34 under 1886-1887 Seth Thomas City Clocks. The case is French sash with beveled glass. The



height is $9\frac{3}{8}$ ". The base width is $9\frac{3}{4}$ ". It is in good condition. The movement is 8-day, half-hour strike, and cathedral bell. The dial is white porcelain 4" in diameter.

Walt Hubrig



Wait. Don't Tell Me!

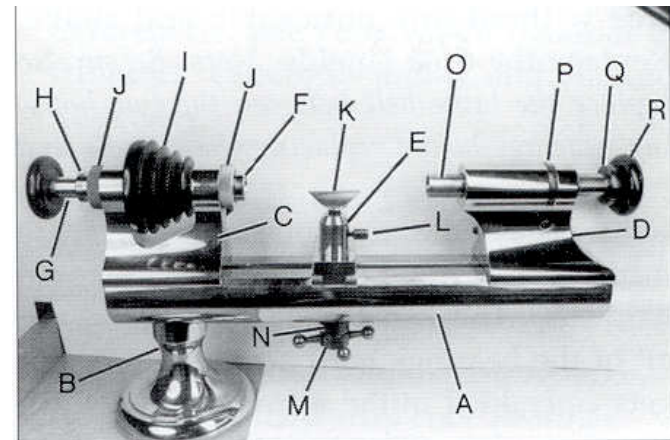
Where is this tower clock located? How is the location linked to Chapter 107?



Walt's favorite clock is described as having a **French sash** case and **cathedral bell** strike. What do these terms mean?

To what watch complication does the term "rattrapante" refer?

Can you name the major parts of a watchmaker's lathe?



OK, Now Tell Me.

The tower clock is located at the Filoli Estate in Woodside. In 1999 members of Chapter 107 undertook to restore four 18th century tall-case clocks for Filoli. The work was completed in 2000 and reported in the August and December 2000 editions of the *Bulletin*. Many chapter members will remember the June 2000 meeting held at the estate. If anyone knows anything about the tower clock, please, share your knowledge with our membership. The fellows shown were part of the project.



When referring to a window, **French sash** means the window opens to the side. In clocks it refers to polished brass or gilded decorations. In this case, it probably refers to the beading around the bezel (see detail in photo to the left). **Cathedral bell** refers to a low-pitched gong struck slowly with a leather hammer. (Thanks to Dorian Clair for explaining these terms.)



Rattrapante is the French term for a split-second chronograph; *i.e.*, having two chronograph (stop watch) hands one of which can be stopped and restarted while the other continues to run.

- | | |
|----------------------|-------------------------|
| A bed | J dust shields |
| B pedestal | K "T" of tip-over rest |
| C headstock | L locking lever |
| D tailstock | M hand rest locking nut |
| E tip-over hand rest | N locking bolt washer |
| F headstock spindle | O tailstock spindle |
| G draw-in spindle | P locking ring |
| H locking nut | Q stop |
| I pulley | R draw-in spindle |

MORE ON COLOR TEMPERATURE

COLOR SCALE		Fahr.	Cent.
WHITE		2200°	1200°
LIGHT YELLOW		1975°	1080°
LEMON		1830°	1000°
ORANGE		1725°	940°
DARK ORANGE		1680°	890°
SALMON		1550°	840°
BRIGHT CHERRY		1450°	790°
CHERRY		1375°	745°
MEDIUM CHERRY		1275°	690°
DARK CHERRY		1175°	635°
BLOOD RED		1075°	580°
FAINT RED		930°	500°

LIGHT BLUE		Fahr. 640°	Cent. 340°
FULL BLUE		590°	310°
PEACOCK		540°	280°
BRONZE		520°	270°
DEEP STRAW		475°	245°
STRAW		440°	225°
FAINT STRAW		400°	205°

From *Tool Steel Simplified* by Frank Palmer

CHAPTER LIBRARIES

BOOK: The Chapter book library is located at **Classical Clocks and Antiques**, 1086 E. Stanley Blvd., Livermore. Contact **Nile Godfrey** (925-449-2127) for more information.

VIDEO: Chapters 107 and 5 share a video library. Contact **Price Russ** (925-937-9231) for information.

TOOL: Contact **Walt Hubrig** (925-685-0260) or **Price Russ** (925-937-9231) for information on the tools and parts available for use by Chapter members.

There is no cost to borrow items from these collections.

NOTICES FROM MEMBERS

(The Bulletin accepts notices from Chapter members for all items/subjects horological - wanted, for sale, giveaway, services, and so forth. There is no charge. All you have to do is supply copy to the editor.)

CHAPTER #107 MEETINGS

Days and Times

Mart Second Sunday 11:30AM Even numbered months
 Chapter Second Sunday 12:30PM Even numbered months
 Board Second Sunday after the Chapter Meeting
 Evening First Friday 7:30PM Odd numbered months

Future Meeting Dates

FRIDAY

July 2006 - None
 September 2006 - None
 November 3, 2006
 January 5, 2007
 March 2, 2007
 May 4, 2007

SUNDAY & BOARD

August 13, 2006
 October 8, 2006
 December 10, 2006
 February 11, 2007
 April 8, 2007 (?)
 June 10, 2007

We want to keep our members coming to the chapter meetings on a regular basis. If you have problems with transportation to and from meetings, let a director or officer know so we can help you find a carpool.

Other NAWCC Chapter Meetings in Northern California		
Chapter	Meeting Address	Meetings
De Anza #94	Odd Fellows Lodge 20589 Homestead Rd Cupertino, CA	2 nd Sunday even months (except April)
Monterey Bay #70	Live Oak Grange Hall 1900 17th Ave Santa Cruz, CA	3 rd Sunday odd months
Sacramento #71	Sacramento Garden Center 3330 McKinley Blvd. Sacramento, CA	4 th Sunday odd months
San Francisco #5	Boys and Girls Club 401 Marina Blvd. San Leandro, CA	2 nd Sunday odd months (1 st Sunday in May)

DIRECTIONS TO CHAPTER MEETINGS

Sunday Meetings
(except August and December)

From Oakland - Highway 24 going East

Take Pleasant Hill Road South exit.
 At light, turn right onto Pleasant Hill Rd.
 At end, turn left on Olympic Blvd. Go 0.9 miles.
 At light, turn right onto Tice Valley Blvd. Go 0.6 miles.
 Turn right into Acalanes Adult Center (1963 Tice Valley Blvd.).

From San Ramon - Highway 680 going North

Take Olympic Blvd. exit.
 Left on Olympic Blvd. Go 0.9 mile.
 At light, turn left onto Tice Valley Blvd. Go 0.6 miles.
 Turn right into Acalanes Adult Center (1963 Tice Valley Blvd.).

From Benicia - Highway 680 going South

Take Olympic Blvd. exit.
 Right on Olympic Blvd. Go 0.8 mile.
 At light, turn left onto Tice Valley Blvd. Go 0.6 miles.
 Turn right into Acalanes Adult Center (1963 Tice Valley Blvd.).

Only NAWCC members can participate (buy or sell) in our Mart. Be prepared to show your current membership card.

True taper chucks are used for holding laps while turning them true.



Closing Thought

**You will never find time for anything.
 If you want time you must make it.
 Charles Buxton (1875 - 1942)**