



## Meeting Minutes, June 5, 2009

### A Matter of Position



Gene Osten presented our June Program "How GPS Works"

President Dave Weisbart called the meeting to order at 8:00 p.m. He introduced the guests Charlotte and Honey, Brian Dodson (Jim's son) and welcomed back Bob and Rosemary Leonard. Dave thanked the Abbott's for the cookies and Larry Squires for the Root Beer Floats.

Treasurer Bob Linkenhoker is en route to the National in Michigan. Preliminary numbers are in for the Goodyme Supermart, around \$1,000 profit.

Upcoming marts: Chapter 75 is July 26 and the Del Mar Regional is in November.

Most of the video library has been converted to DVD, thank you, Dave! With great sadness, it was announced that long time member Angelo

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## This month

### What Does That Gear Do?

Beginning clock mechanics are often puzzled by the functions of the various gears of a clock movement, especially when it comes time to reassemble them! This month, Dave Weisbart will try to de-mystify the gears in a program called "Gear Trains 101."



While many people start off using diagrams and photographs to remember how movements go back together (a "rote" method), Dave has always advocated that understanding of how the parts function is a better way to determine how they go back together. Being able to identify what a gear does by its features is critical to being able to do this.

Dave will use a screen show to illustrate various time trains (typical American, typical European), strike trains (count wheel, rack and snail), and chime trains. He will also discuss

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## Beginners' Corner

### Horological Sleuthing on the Internet

by Ray Brown

Our June meeting show and tell was "U" or "V" so I brought a clock made by the United States Clock Company of New York (picture on page 2). Larry Squires asked me if I knew who made the movement and I had to admit I had no idea but it was marked with the intertwined U & S for this company. We all have interesting clocks that we come across and the uncommon ones, especially, often have very little history about the company or the people involved in their design, manufacture, and marketing.

I have found, however, that there are now several useful search engines that make it easier to find out something about both the common and the unusual horological items we may find ourselves perplexed about.

At our next meeting, I will show how I used some of these resources to develop the biography of Timothy Powers, inventor of the Eureka clock, and also some results of an investigation into finding an answer to Larry's question from last month.

**DUES ARE DUE!**

(See page 3)

## Meeting Minutes (from page 1)

DiMino passed away. Dave said that Ana Pond's father passed away, as well as Dave's own mother.

Dave Weisbart announced that he has resigned from the board of directors of Chapter 69. Time is no longer his own, he is now the primary caretaker for his father. Dave announced Vice President Doug Adams is now president. Doug continued with the meeting.

The program was presented by Gene Osten, "How GPS Works." The early navigators used a sextant, an hourglass, then a chronometer and also a log (a real log!). There were problems, if the sun wasn't shining or it was at night, position could not be determined. And, these required computations. The early navigators used visual sightings (pilotage), lighthouses and later, foghorns. Things got much better with radio navigation. This allowed points to be triangulated even in bad weather. The radio allowed time to be determined to higher accuracy.

Systems used along the way have been the Loran C (90-110 kHz) from the 1940's to present, VOR, VORTAC, VORDME from the 1950's to present, Transit from the 1960's to 1996 and the Omega from 1968 to 1997.

Requirements for the systems include accurate positioning (~ 10 m – in the 1970's, that was incredible accuracy). They must be passive, global coverage, quick acquisition (15 minutes used to be good, now if it takes 15 seconds, something may be wrong with the system), continuous operation, all weather, resistant to jamming and spoofing and also provide velocity and time (PVT solution). That's a lot to ask for!

The NAVSTAR GPS was developed in the early '70s with the first satellite launched in 1978. There are 30 operational satellites, 24 satellites in 6 orbital planes, 4 satellites in each plan. They are 20,184 km or 10,898 nautical miles or 12,533 miles above the earth. That orbit gives them exactly two spins per day, (sidereal day).

Other Global Navigation Satellite Systems (GNSS) include GLONASS (Russian) only 12 operational satellites; Galileo (European) and Compass/Beidou (Chinese).

There were lots of questions. Here are some of the answers to questions. If one satellite goes bad, a little bad, it can be corrected. If it can't be corrected, they boost it into garbage orbit and replace with a spare that is in orbit. The cost to launch into orbit is approximately \$3 bil per satellite. Rockwell built the initial Block. I missed the maker of Block 2 and the Block 3 bid will likely go to Lockheed. All GPS satellites broadcast on the same frequency. L1 (1.57542 GHz) for civilian use. L2 (1.22760 GHz) and L5 (1.17645 GHz) will have civilian signals added in the future.

Who holds the spread spectrum patent? Ken Lynn knew the answer, WOW! This is the first time anyone knew the answer when Gene has asked a group. The actress, Hedy Lamar.

There is one master control system. All commercial users are on the same signal (well, one exception). The most common types of receivers are autonomous (as in our cars), DR (Dead Reckoning), DGPS (Differential GPS) and more.

GPS receivers require measurements from 4 or more satellites to calculate a 3D position. Three for XYZ and one for clock bias (time). This makes the \$300 cost of a GPS dirt cheap!

The GPS in your car calculates your position as a point in space. The maps do not come over the air.

At one time, there was an "error on purpose" or SA "Selective availability." On May 1, 2000, by a Presidential directive, the SA was set to Zero. If they turned the SA back on, a multitude of people would know within a minute and a half. There would be no secret.

This is funded by DOD budget.

Thank you, Gene. Very fun and interesting indeed! I know I made mistakes in my note taking, in advance, Gene, sorry!

Show and Tell began with the letter "U and V" or treasures purchased from the Goodtyme Supermart. Dave Weisbart brought a clock he purchased, a Terry & Andrews Clock (predecessor to Ansonia) made between 1842 – 1850. Dave showed us a picture of a clock similar to his in a book. He changed the glass to a frosted lyre (the movement is a one day lyre movement).



*Dave's Terry & Andrews Clock with lyre glass and movement.*

# Dues are Due!

It's time to renew your membership to Chapter 69. Your support of our activities is very important to the chapter's well-being, so we're counting on every member to send in his or her renewal.

Please fill out the form on the right and bring it with you to the meeting. If you can't attend this month's meeting, please mail your dues today!

## Don't Like to Stand in Line?

Get the annual pass option! This permanent badge gets you into every regular meeting without having to pay at the door. This pass gets you into 12 meetings for the price of 11.

For an individual pass, include \$44 plus your dues (\$54 total). For a couples pass, include \$66 plus dues for two (\$86 total).



## Orange County Chapter 69 Membership Application

New Member  Renewal  
(check one)

PLEASE PRINT

\_\_\_\_\_  
Last Name

\_\_\_\_\_  
First Name

\_\_\_\_\_  
Spouse Name

\_\_\_\_\_  
Street Address / P.O. Box #

\_\_\_\_\_  
City, State, ZIP

\_\_\_\_\_  
NAWCC #

\_\_\_\_\_  
Phone

\_\_\_\_\_  
Email Address

Check here to receive the Tic Talk Times by U.S. Mail. (\$5.00 extra)

**Dues for 2009-10 are \$10.00.**  
Add \$5.00 for mailed newsletter.  
Please make your check payable  
to: "Orange County Chapter 69."

Check below for options. Amounts  
are in addition to dues.  
 Individual annual pass (\$44)  
 Couples annual pass (\$66)

Complete this form and mail to:  
Cora Lee Linkenhoker  
7186 Calico Cir.  
Corona, CA 92881



*Ray's US Clock company mantel clock*

Ray Brown brought a clock made by the US Clock Co in New York. They were in business from 1850 to 1860. The movement is marked. Ray did some research and found the business was on Courtland Street in New York (so was the Kroeber Clock Co).



*Doug Adams Chelsea from our recent mark.*

Doug Adams brought a clock he purchased at the mart, a Chelsea Ship's Bell Clock with an unusual dial. It has a gilded inset. Chelsea was primarily a bronze manufacturing company.



*Les Lesovsky's Vacheron poscketwatch made it to show & tell after 15 years in a cigar box and still running!*

Les Levosky brought a Vacheron pocketwatch he's had for 30 years. It's in a silver case, he thinks it is hallmarked 1850 on the case. Les said this has been in a cigar box and today is the first day it has seen daylight in at least 15 years.

Door prizes were won by Woody Woodson, Randy Ema and Paul Martyn.

The meeting was adjourned at 9:30.

~Julie Stevens



### *This Month* (continued from page 1)

the differences in power wheels (open spring, barrels, and chains and cables).

If you're just starting out with movements, or you're contemplating working on them, or even if you're just curious how it all goes together, this will be good information to have.

**DATED MEETING NOTICE  
PLEASE DO NOT DELAY**

Orange County Chapter No. 69  
c/o Cora Lee Linkenhoker  
7186 Calico Cir.  
Corona, CA 92881

*The National*  
**ASSOCIATION OF  
WATCH & CLOCK  
Collectors, Inc.**



**Our Next Meeting: Friday, July 3, 2009**

*Program:*

**LIVE PRESENTATION  
"Gear Trains 101"  
by Dave Weisbart**

*Beginner's Corner Mini-Seminar:*

"Horological Sluething on the Internet" by Ray Brown

*Show & Tell:*

Horological items beginning with the letters "X," "Y" or "Z"

*Board Meeting:*

*No Board Meeting in July*

*Time:* 7:00 – Doors open  
8:00 – General Meeting

*Admission:* \$4.00 – General  
\$6.00 – Couples

*Location:* Acacia Grove Masonic Lodge  
11270 Acacia Parkway  
(in the Civic Center)  
Garden Grove, CA

