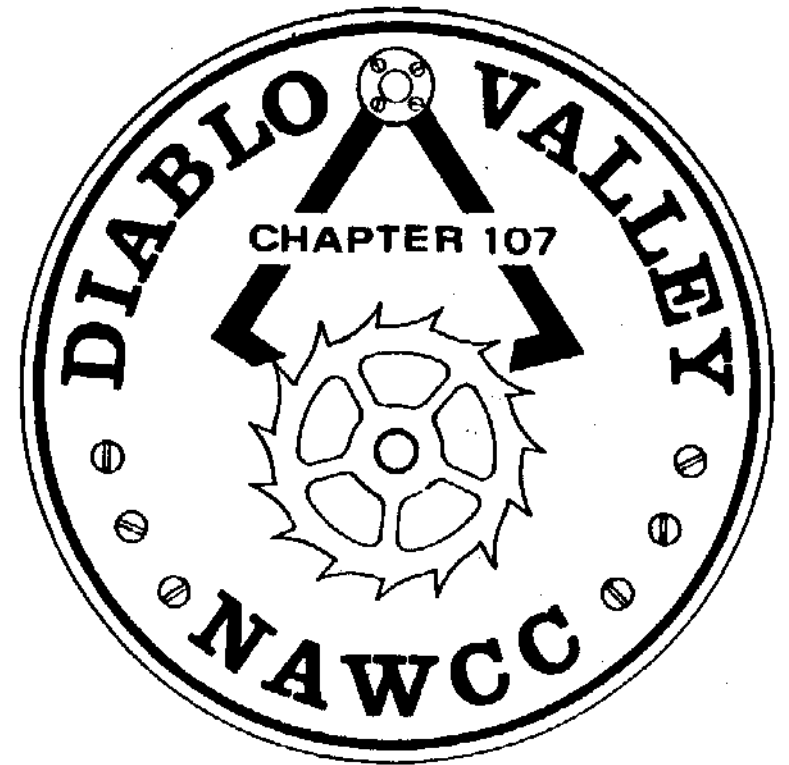


# BULLETIN



**December 2014**  
**Volume 216**

# DIABLO VALLEY

## Chapter 107

National Association of Watch and Clock Collectors

<http://community.nawcc.org/chapter107>

email account [chapter107nawcc@gmail.com](mailto:chapter107nawcc@gmail.com)

Chapter Established March 5, 1978

### "Accent on Education"

#### OFFICERS

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### One important change

**Mart hours will be from 10:30  
with the formal meeting and program  
starting at noon.**

## THE ANNUAL HOLIDAY LUNCHEON CELEBRATION

N.A.W.C.C. Diablo Valley  
Chapter #107 December Meeting

**BACK FORTY ROADHOUSE & SALOON**

100 Coggins Drive, Pleasant Hill, Ca. 925-935-1440

**Sunday December 14, 2014, 11:00 AM to 3:00 PM**

Please bring and wear your badges

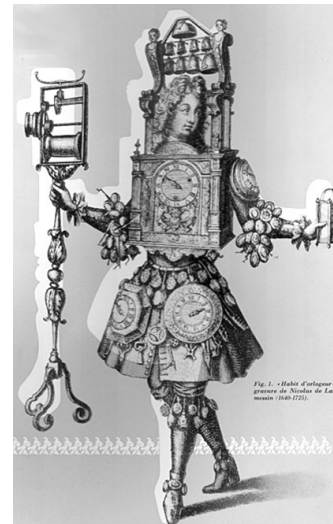
#### Program:

Election of 2014 Officers and Directors:

#### Auction of Quality Pieces:

*Bring your serious Clocks and  
Watches, Related Timepieces,  
and Supplies of High Quality.  
You keep all the money .*

*Nothing for the Chapter. This  
is your big Chance of the year.  
Look over Your Collection and  
make Someone Happy. BRING  
THEM ALONG!*



## *President's Message*

I hope everyone has sent in their check to **Walt Hubrig** for our Annual Holiday Luncheon Celebration as well as their annual dues. Our luncheon will be held at the Back Forty Roadhouse & Saloon, the same location as last year. Our luncheon will feature the election of Officers and Directors for 2015 as well as an auction of Horological treasures. We do allow the seller to set a minimum opening bid amount for his lot. The seller keeps all the money, the chapter keeps nothing. So please bring your excess Horological items to the auction. I want to thank **Julia Mueller** from Tacoma, Washington for traveling all the way to Danville at her own expense to give an excellent program on Character Watches. Many of our members commented on how much they enjoyed her presentation. A big thank you to **Jerry Konicek** for an outstanding job putting a reception for **Julia** together after the meeting. One of **Price Russ** projects was to establish a budget to bring in a distinguished outside speaker for a special program once a year. If anyone has a suggestion for a future guest speaker for 2015 let **Price** or me know.

I also want to thank **Nancy Clark** and **Bill Bailey** for the work they did in setting up the Ken Clark Silent Auction Estate Sale. They had many tables of Horological treasure for sale. It looked like they found new homes for many items. Hope you found something to add to your collection.

See you at the luncheon!

John

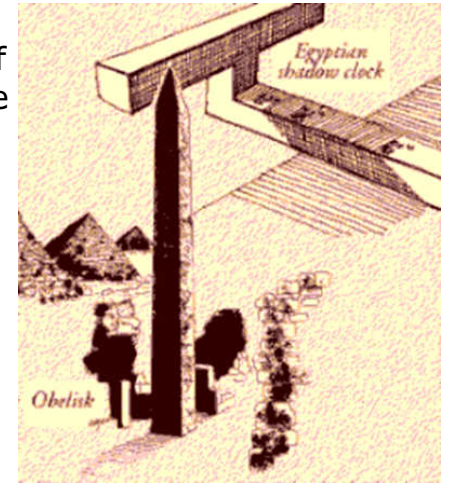
**Mark Your Calendars**  
**Silver Dollar Regional**  
**J A Nugget Hotel Casino Resort, Sparks, NV**  
**August 29-30, 2015**

## The Invention of Clocks

### Part 2: Sun Clocks, Water Clocks, Obelisks

#### Egyptian shadow clock with Obelisk

Not until somewhat recently (that is, in terms of human history) did people find a need for knowing the time of day. As best we know, 5000 to 6000 years ago great civilizations in the Middle East and North Africa initiated clock making as opposed to calendar making. With their attendant bureaucracies and formal religions, these cultures found a need to organize their time more efficiently.



#### **Sun Clocks**

After the Sumerian culture was lost without passing on its knowledge, the Egyptians were the next to formally divide their day into parts something like our hours. Obelisks (slender, tapering, four-sided monuments) were built as early as 3500 B.C. Their moving shadows formed a kind of sundial, enabling citizens to partition the day into two parts by indicating noon. They also showed the year's longest and shortest days when the shadow at noon was the shortest or longest of the year. Later, markers added around the base of the monument would indicate further time subdivisions.

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## SUN CLOCK

Continued from page 5

Another Egyptian shadow clock or sundial, possibly the first portable timepiece, came into use around 1500 B.C. to measure the passage of "hours." This device divided a sunlit day into 10 parts plus two "twilight hours" in the morning and evening. When the long stem with 5 variably spaced marks was oriented east and west in the morning, an elevated crossbar on the east end cast a moving shadow over the marks. At noon, the device was turned in the opposite direction to measure the afternoon "hours."

The *merkhet*, the oldest known astronomical tool, was an Egyptian development of around 600 B.C. Two *merkhet*s were used to establish a north-south line by lining them up with the Pole Star. They could then be used to mark off nighttime hours by determining when certain other stars crossed the meridian.

In the quest for more year-round accuracy, sundials evolved from flat horizontal or vertical plates to forms that were more elaborate. One version was the hemispherical dial, a bowl-shaped depression cut into a block of stone, carrying a central vertical gnomon (pointer) and scribed with sets of hour lines for different seasons. The *hemicycle*, said to have been invented about 300 B.C., removed the useless half of the hemisphere to give an appearance of a half-bowl cut into the edge of a squared block. By 30 B.C., Vitruvius could describe 13 different sundial styles in use in Greece, Asia Minor, and Italy.

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## SUN CLOCK

Continued from page 6

### ***Elements of a Clock***

Having described a variety of ways devised over the past few millennia to mark the passage of time, it is instructive to define in broad terms what constitutes a clock. All clocks must have two basic components:

- *A regular, constant or repetitive process or action to mark off equal increments of time.* Early examples of such processes included movement of the sun across the sky, candles marked in increments, oil lamps with marked reservoirs, sand glasses ("hourglasses"), and in the Orient, small stone or metal mazes filled with incense that would burn at a certain pace.

*A means of keeping track of the increments of time and displaying the result.* Our means of keeping track of time passage include the position of clock hands and a digital time display.

The history of timekeeping is the story of the search for ever more consistent actions or processes to regulate the rate of a clock.

Continued on page 12

### **DID YOU KNOW—Alarm Clocks**

An early prototype of the alarm clock was invented by the Greeks around 250 BC. The Greeks built a water clock where the raising waters would both keep time and eventually hit a mechanical bird that triggered an alarming whistle.

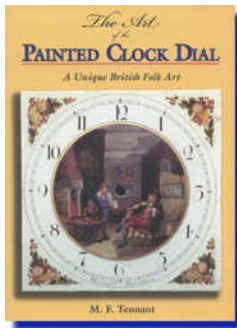
The first mechanical alarm clock was invented by Levi Hutchins of Concord, New Hampshire, in 1787. However, the ringing bell alarm on his clock could ring only at 4 am. On October 24, 1876 a mechanical wind-up alarm clock that could be set for any time was patented (#183,725) by Seth E Thomas.

# October 2014



## THE ART OF THE PAINTED CLOCK DIAL

by M. F. Tennant



In 1772 a different type of clock dial made of painted iron was announced to replace the traditional engraved brass dial, and a new industry was born that flourished for over a century. The Art of the Painted Clock Dial charts the rise of painted dials and the dialmakers who worked in Birmingham and elsewhere, with particular emphasis on the development of the various artistic styles that were in fashion at different times. Introductory chapters discuss the development of painted elements on brass dials and the themes on various types of painted dials. Subsequent chapters deal with the major Birmingham dialmakers as well as smaller concerns, together with the various factors and merchants who sold dials under their own brand name, but made by others. The different artistic styles found on dials made in the lesser centres of production, such as Manchester, Halifax and Scotland, are also considered. Throughout this book the different styles of artwork and graphics that distinguish the dials made by various manufacturers are discussed and illustrated. The birds, flowers or moon faces painted by the anonymous artists working for different dialmakers can often be identified with a particular manufactory. These dial styles, and especially the graphics, provide important evidence that often enables a clock to be dated to within a few years. This important new book brings a unique British folk art to a wide audience and it will not only be an essential reference work for horologists and collectors, but introduces the subject to those interested in the history of a form of commercial art found in many houses and cottages from the eighteenth century to the present day. Painted clock dials range from sophisticated high-quality artwork, sometimes specially commissioned, to simple naïve painting to satisfy a mass market. After a long period of being ignored by collectors, it is now appreciated that painted dials are an essential part of horological history and development. The author draws on many years of restoring, documenting and researching painted clock dials and compiling the largest library of photographs, to present the most detailed study to date. The Art of the Painted Clock Dial includes 730 illustrations, almost 520 of them in colour.

## Bird Precision Remains Sole Glass Jewel Maker After 89 Years

From the first landing on the moon to World War II battleships to 20th century fiber optics and fluidics, Bird Precision, makers of precision jewels (low friction, high precision components) since 1913, continues to keep tiny-but important-wheels, hands and dials of the world moving.

As they have been for over 85 years, Bird Precision is the only precision glass jewel manufacturing plant in the United States and is still the forerunner in new applications for the precision jewel industry—specifically micro miniature precision orifices, nozzle and restrictors for the hydraulics and pneumatics industry.

Founded over 80 years ago by Richard H. Bird after he left the famed Waltham Watch Company, Bird Precision originally manufactured jeweled bearings for pocket watches. In 1938 Bird was joined by Randall P. Cameron, Sr., and together they pioneered method of using economical hard glass in applications that formerly used only synthetic sapphire and ruby, revolutionizing the precision jewel industry.

With this knowledge, Bird Precision has played an integral role in the advancement of state-of-the-art technology. Through applications of precision jewels, Bird Precision has made possible watt hour meters, avionic instrumentation (for which they won the coveted Army-Navy “E” award), panel meters, marine compasses and parts for computer operated machinery.

Competition from foreign markets, emergence of glass replacing the sapphire and ruby jewels and most markedly, diversification of the market in instrumentation and controls has encouraged Bird to continue to move in different directions. Bird Precision maintains an impeccable reputation for precision component fabrication, repeatability and economy of high quality production.

Today, the competitive and innovative spirit remains solid. Under the direction of President Carl J. Cunningham, a 36 year veteran, and [Paul Baillio](#), Vice President of Sales and Marketing, with over 30 years experience at Bird, Bird Precision continues the tradition of seeking out new applications, yet never losing sight.

Bird Precision – setting the standard of excellence since 1913.

## Water Clocks

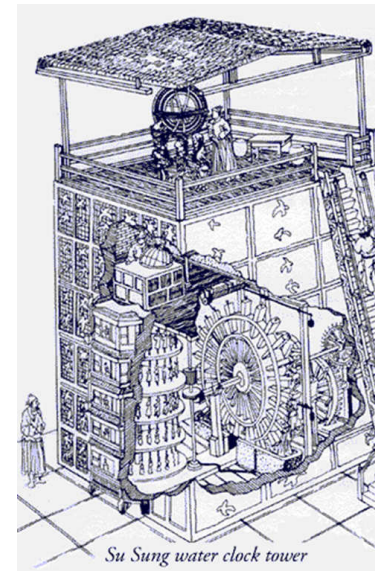


Water clocks were among the earliest timekeepers that did not depend on the observation of celestial bodies. One of the oldest was found in the tomb of Amenhotep I, buried around 1500 B.C. Later

named *clepsydras* ("water thief") by the Greeks, who began using them about 325 B.C., these were stone vessels with sloping sides that allowed water to drip at a nearly constant rate from a small hole near the bottom. Other clepsydras were cylindrical or bowl-shaped containers designed to slowly fill with water coming in at a constant rate. Markings on the inside surfaces measured the passage of "hours" as the water level reached them. These clocks were used to determine hours at night, but may have been used in daylight as well. Another version consisted of a metal bowl with a hole in the bottom; when placed in a container of water the bowl would fill and sink in a certain time. These were still in use in North Africa this century.

More elaborate and impressive mechanized water clocks were developed between 100 B.C. and 500 A.D. by Greek and Roman horologists and astronomers. The added complexity was aimed at making the flow more constant by regulating the pressure, and at providing fancier displays of the passage of time. Some water clocks rang bells and gongs; others opened doors and windows to show little figures of people, or moved pointers, dials, and astrological models of the universe.

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A Greek astronomer, Andronikos, supervised the construction of the Tower of the Winds in Athens in the 1<sup>st</sup> century B.C. This octagonal structure showed scholars and marketplace shoppers both sundials and mechanical hour indicators. It featured a 24-hour mechanized clepsydra and indicators for the eight winds from which the tower got its name, and it displayed the seasons of the year and astrological dates and periods.

The Romans also developed mechanized clepsydras, though their complexity accomplished little improvement over simpler methods for determining the passage of time.

In the Far East, mechanized astronomical/astrological clock making developed from 200 to 1300 A.D. Third-century Chinese clepsydras drove various mechanisms that illustrated astronomical phenomena. One of the most elaborate clock towers was built by Su Sung and his associates in 1088 A.D. Su Sung's mechanism incorporated a water-driven escapement invented about 725 A.D. The Su Sung clock tower, over 30 feet tall, possessed a bronze power-driven [armillary sphere](#) for observations, an automatically rotating celestial globe, and five front panels with doors that permitted the viewing of changing manikins which rang bells or gongs, and held tablets indicating the hour or other special times of the day.

Since the rate of flow of water is very difficult to control accurately, a clock based on that flow could never achieve excellent accuracy. People were naturally led to other approaches.

**CHAPTER #107 MEETINGS**

**Second Sunday of the Even Numbered Months**

Mart: 10:30AM  
 Chapter: 12:00PM  
 Board: after the Chapter Meeting

**Future Meeting Dates**

February 08, 2015

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.

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



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

**DIRECTIONS TO  
CHAPTER MEETINGS**  
*(except August and December)*  
**743 Diablo Road, Danville**

Take Interstate 680 to the Diablo Road exit in Danville. Go east on Diablo Road for 0.6 mile. The Grange Hall will be on your right. Parking is available in the front and rear. Enter from the front; *i.e.*, street side. Facing the building from the street, there is a ramp on the right side for handicap and cart access.

**CHAPTER LIBRARIES**



**BOOK:** The Chapter book library is located at Classical Clocks and Antiques, 1082 E. Stanley Blvd., Livermore. Contact Nile Godfrey (925-449-2127) for more information.

**VIDEO:** Chapters 107 and 5 share a DVD 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.

**Disclaimer**

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