

# HOROLOGICAL TIMES™

AMERICAN WATCHMAKERS-CLOCKMAKERS INSTITUTE

FEBRUARY 2011



## ISSUE highlights

**This Month's Focus: *Technical Challenges***

**Planting Pivots**

*A Steady Rest for Pivoting*

**Challenging Situations: Vintage Hands**

*A Study on a Valjoux*

**How Education Impacts the Bottom Line**

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\*See Page 71 of the Tool Catalog.

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\*Tools Catalog Page 68



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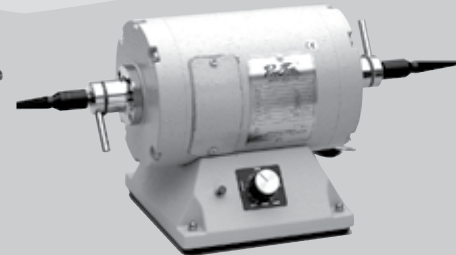
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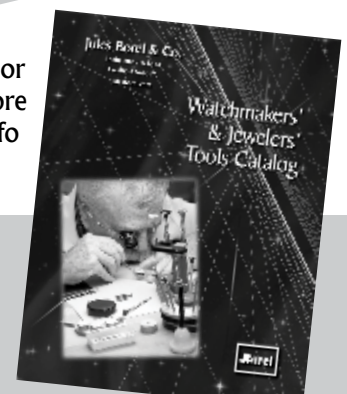


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\*Tools catalog page 241.

\*For more info



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Official Publication of the American Watchmakers-Clockmakers Institute

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Horological Times (ISSN 0 145-9546) is published monthly and copyrighted by the American Watchmakers-Clockmakers Institute, 701 Enterprise Drive, Harrison, OH 45030-1696. Subscription price for the public is \$137.00 per year (\$8.50 per copy). Members subscription is \$70.00 which is included with annual dues of \$137.00. Periodicals postage paid at Harrison, OH 45030 and additional entries. POSTMASTER: Send address changes to Horological Times, 701 Enterprise Drive, Harrison, OH 45030

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# a message from the president

BY MARK BUTTERWORTH



In thinking over my plans for this year, one of the things I plan to do is to work smarter, not harder. How about you? In taking stock of our personal and professional lives we can review what needs to be changed, what we have some control over and *can* change, and then what we have no control over.

Overall, we need to look at those things that make us less healthy—physically, mentally and financially. Since our business is that of time, we should be aware that time is not on our side, and that each wasted moment is a lost one. Time is a wasting asset, as they say in financial circles.

The first idea to help us work smarter is to keep track of our time. I spent a summer in my college days working in the chemistry lab of a consulting engineering firm. On any given day, we worked on many projects. In order to know how to allocate the billing, we had a daily time sheet broken down into 15-minute segments. Every segment was charged to someone or some project. Later, I did trade work for a guy in Chicago who ran a fairly good-sized clock repair business where all employees had time clocks. They punched in when they started on a job and punched out when they were finished. The owner explained that most people significantly underestimate time spent on a job. Even for those in the business of time, we tend to lose track of it. I recommend you try tracking your time for a week. Find out if you really are making the hourly rate desired.

The second way we can work smarter is to keep track of our spending. I had a neighbor who was a retired farmer and full of wisdom. He told me once, it's not how much money a person makes, but how much one keeps that really counts. If a person makes a million dollars, but spends a million and one dollars, they will be broke. I know too many people with credit cards maxed out and many more that carry a balance. Even worse, too many are 50 years old or older and should not have this type of debt. One way to get financial control over our lives is to record each dollar spent. We lose track of the coffee at convenience stores, the lunch at fast food places, and the small items add up. A \$2 cup of coffee 5 days a week is \$520 a year. A \$4 lunch adds another \$1,040. We cannot stop eating, but we can do things economically. An English saying is, "Keep track of the pennies and the pounds will take care of themselves."

The third idea is to decide what not to do. Sometimes we take on jobs that are beyond our comfort level because a person pleads or takes advantage of our vanity. The legendary money manager, Peter Lynch, was asked what separated winning investors from losing ones. He stated that all investors make mistakes. He explained that winning investors cut their losses early, rather than riding them all the way down in the false hope of a turnaround. The losing investor is not willing to admit he made a mistake. I have seen it in the clock business, too. Sometimes the best course of action is to walk away from a job in the first place, or to return the job unfinished at no charge, rather than drowning in a financial and time-robbing sinkhole. For example, I received an order today for some cuckoo movements. My customer told me he hated to do cuckoo clocks, but there were a lot of them in the area. I suggested he raise his prices until he loved to do cuckoo clocks. There has to be some price point at which he either cannot wait to see them come through the door, or he is ready to walk away from the business.

Finally, we need to take steps to reduce risk. I recently received word that a very dear friend's shop was burgled during the night. The shop had quite a few watches in for repair and some were quite valuable. In addition, he had a good stock of watches for sale. Unfortunately, the watches were not put in the safe that night. The good news is, no one was hurt and their business was insured. Still, it's a painful experience. To better protect your business, remember that thieves tend to go for the easy pickings, so the goal is to make your store less easy to "pick." This is a good time to review and take actions like:

- Get an insurance check-up. A good insurance provider will give you a checklist or will perform an inspection to help identify what needs to be done (you can always contact Dowell, the AWCI insurance provider, for advice and a competitive price).
- Password-protect your computer and back-up regularly—take the back-up home.
- Have digital pictures of your stock and/or repair work.
- Record credit/debit card information in the event they are lost or stolen.

Hopefully these thoughts will help you get a good start on your efforts to work smarter, not harder. For myself, I plan to re-read this carefully to see what I have yet to do!

# a message from the executive director

BY JAMES E. LUBIC, CMW21



This year membership dues are being returned at a steady pace and I would like to thank those who have renewed their membership with AWCI. I would also like to remind those who haven't renewed that this issue of the *HT* will be the last you will receive before your address is purged from our membership roster on March

1st. By the way, the trustees of the ELM Trust would like to thank all of you who generously donated to the Trust this year. So far, the total cash donations are \$2,545.06.

There are several important meetings taking place in February. The Industry Advisory Board (IAB) will meet on February 18th. Again this year the IAB will be helping to facilitate the trade fair booth for the upcoming JCK show in Las Vegas at the Mandalay Bay Hotel and Convention Center, June 3-6. We will also be participating in "The Smart Jewelry Show" at Navy Pier in Chicago from April 2-4. The IAB has become instrumental in the progression of AWCI's mission. We appreciate their support and volunteerism and look forward to their continued support.

The 2010-2011 Mid-Year Board of Directors Meeting will take place between February 24-26. Important topics of discussion will include AWCI's strategic action, financial direction, education/certification programs and member benefits. We should have a full report in the April issue of *HT*. And one clarification on the Annual Convention and Educational Symposium: We will hold the 2011 meeting in Vancouver, Washington and will have our 2012 event in Denver, Colorado.

The AWCI Board of Examiners (BOE) will also be meeting on February 25th. The purpose of this meeting is to review certification policies and procedures. If there is any tweaking to the certification that needs to be done, a proposal will be made to the Board of Directors for consideration.

On other topics, one challenge we face here at AWCI on a monthly basis is producing content for *Horological Times*. I would like to invite all of our members to write an article for consideration. We appreciate articles on both technical and business topics. You don't have to be an English major—we can help with editing. What we want is your *knowledge*. If you need ideas for technical issues, please refer to the Standards and Practices for both the Watchmaker and Clockmaker on the AWCI website. Please e-mail your articles to *HT* Editor, Amy Dunn, at [adunn@awci.com](mailto:adunn@awci.com) or call her at 866-367-2924, ext. 307. We also have a writers information guide on the website under the Advertisers menu. And although you won't get rich at this, we do offer an *appreciation fee* that might come in handy.

I have two other important business ideas: 1) Be sure to update your information on the Referral Directory for free business leads, and 2) Join the Technical Discussion and Parts Forum. Go to [www.awci.com](http://www.awci.com) to find both of these vital services.

Have a great month and remember, when making purchases from our advertisers, tell them you saw their ad in *Horological Times*.

## AWCI new members

### Alabama

David W. Chandler-Jasper, AL\*

### California

Paul Currier-Tujunga, CA  
David Lyon-Westchester, CA\*  
Matthew Coleman Williams-San Diego, CA

### Colorado

Jonathan Mattson-Colorado Springs, CO  
Marie Westmoreland-Colorado Springs, CO

### Florida

Mr. Nelson D Boronat-Cape Corral, FL\*  
Kevin Conant-Clearwater, FL\*

### Georgia

Joseph Glenn McGahee-Clarsville, GA\*

### Illinois

Mirza B. Saleem-Chicago, IL\*

### Michigan

Marshall Fugate-Port Huron, MI\*

### New Jersey

Neil Dare-East Windsor, NJ

### New York

Charles Berthiaume-New York, NY

### Ohio

Charles Pollard-Paulding, OH

### Pennsylvania

Alan Kidder-Kutztown, PA

### Texas

Mike Nappa-Fort Worth, TX\*  
Hai Nguyen-Richardson, TX\*

### Utah

Gene Sisson-Midvale, UT

\*AWCI welcomes back these individuals who have chosen to reinstate their membership.

# You Asked For It—Now We Have It!



## Announcing Member Discounts for FedEx® and LTL Shipping



Through our surveys and various requests from members, we recognized that our watchmaker-clockmaker members could really benefit from discounted shipping rates. AWCI is pleased to announce we've secured a freight savings plan with the leader in the industry—FedEx. What's more, we have negotiated the lowest fee structure that FedEx offers for national trade associations. These discounts apply to national and international shipping through FedEx, and also to less-than-truckload (LTL) shipments through YRC. This company will provide a no-fee, money-back standard service guarantee on standard LTL transit schedules across the contiguous 48 states and between the U.S. and Canada.

Depending upon how much you ship annually, these freight savings alone could more than pay for your annual AWCI membership. Here's a brief summary of the AWCI Freight Savings Plan that begins this month:

- Save up to 29%\* on select FedEx Express® services.
- Save up to 20% on select FedEx Ground® services.
- Save at least 70% on less-than-truckload shipments with YRC.
- It's free. It's easy. And there's no minimum shipping requirement.

Benefit provider, Siriani, has helped association members save thousands of dollars. Register today at [www.siriani.com/awcifsp](http://www.siriani.com/awcifsp) or call 800-554-0005.

*\* Includes a 5% electronic shipping discount. For eligible FedEx® services and rates, contact your freight savings program provider, Siriani & Associates. All FedEx shipments are subject to the applicable FedEx Service Guide. FedEx service marks used by permission.*



Vancouver, Washington and Portland, Oregon skyline

## **NEWS FLASH!**

**SAVE THE DATE:**

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**AWCI Annual Convention & Educational Symposium**

Vancouver, Washington  
(Portland, Oregon metropolitan area)

# Sharing Information is Key to Industry Well Being



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**1. Interchange.** A confidential monthly submission of your accounts-receivable aging. In return for providing JBT with this data, Interchange participants receive the following:

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- FREE Weekly New Claims & Bankruptcy Report listing collections claims placed with JBT during the prior week, including Debtor name and claim amount, as well as key developments in industry cases filed with the U.S. Bankruptcy Court.

**2. JBT CreditShare:** An online platform for members to confidentially share and view current payment data, including memo (consignment), bounced checks, returned goods and more. This platform is located on the “**Company Details**” page of [www.jewelersboard.com](http://www.jewelersboard.com) (after member login). Members search for any company, click on the company name, then click on the

The Jewelers Board of Trade is the only credit-reporting organization focused solely on the jewelry industry. Its mission is to promote industry

“**CreditShare**” tab to view and submit data.

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# Planting Pivots

BY LAURIE PENMAN

I have often written about bushing clock plates because bad bushing is a major cause of clock problems. I have not yet written about placing holes in new plates which is the focus of this article on planting pivots. A movement that needs restoration due to previous problematic repairs—and one that has holes scattered around with little consideration for their correct position—is in the same category as invisible plugging and plate inserts. Overall, I have found that restoration is basically clockmaking with added difficulties.

In this example, the drawings for the plates show all the holes on vertical and horizontal center lines using the base of the plates and one side as datum lines. The most important dimension is the center distance from one hole to another, and if this does not match with either of the center lines, the horizontal line should be modified to suit the center distance. For this reason, I usually mark the winding arbors, center pivot and escapement pivots on vertical lines and the others on the intersection of arcs representing the center distances. You should only use the vertical and horizontal lines for these as a guide. Figure 1 shows a hypothetical striking movement and the positions of the pivot holes using center lines and arcs. As a general rule, every other pivot hole is marked on intersecting arcs which corrects any errors resulting from vertical and horizontal measurements.

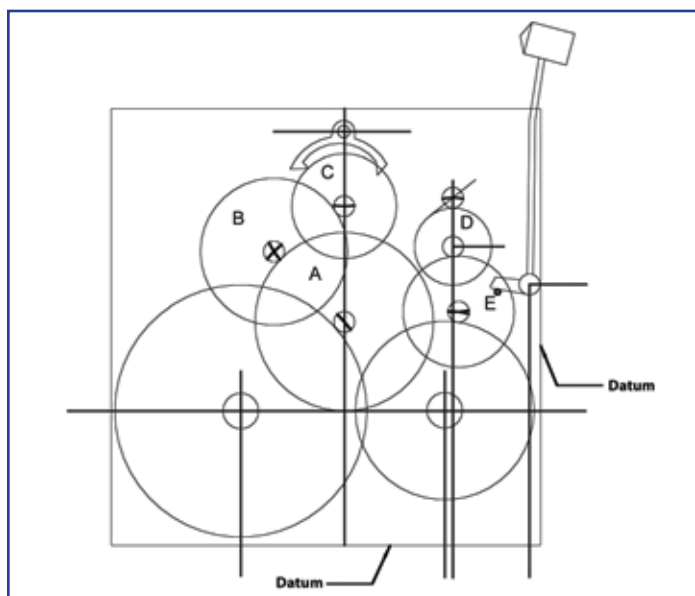


Figure 1

The escapement pallets are marked using the vertical and horizontal lines because there is a limited

amount of space to the top of the plate. The center distance to the wheel is established on the vertical. From the center wheel marked A and the escape wheel marked C, the two arcs intersect for the third wheel B. Vertical and horizontal measurements would be irrelevant here. The marking for A is established on the vertical center line by the arc from the winding arbor. On the striking side the winding arbor is placed on vertical and horizontal measurements and so is D. It is placed on intersecting arcs and the fly or fan is set out on a vertical line and an arc above it. So when marking the plate, I mark four horizontal lines according to the drawing dimensions, then five vertical lines. The pivots for B and E are marked using intersecting arcs only.



Figure 2

Figure 2 is an actual clock plate. The sides have been filed to form a true rectangle with square corners. It is then painted with marking ink. Why? This spirit-based ink dries quickly and leaves a blue surface that shows all marked lines better than on a plain brass finish. The positions of the holes are now marked on the surface one at a time. In this case, they are all arranged on a vertical center line because the movement is a time only. I have drawn a vertical line and marked the first hole with a dot punch. This is for the first wheel, of course. Notice that a dot punch has been used. The difference between a dot punch and a center punch can be seen in Figure 3 where the dot punch (the lower one) has a sharper point and a more slender shaft. This makes it easy to see where the point is being placed; it is only struck lightly with a hammer, which is sufficient to make a mark, yet faint enough to allow a second positioning if the first

# Planting Pivots

BY LAURIE PENMAN



Figure 3



Figure 6



Figure 4

position is not quite correct. The center punch (the upper one) has a point that matches the angles of a twist drill point and is struck heavily after locating the tip in the dot. This provides a secure position for the point of the dividers and a start for the drill (Figure 4).



Figure 7



Figure 5

In fact, several different instruments can be used for setting out the arcs. The dividers are the simplest, but they can only be used for marking or scribing marks. Their points are ground with flats on the inner surface (Figure 5) so the distance across the points may be measured accurately with a vernier caliper (Figure 6).



Figure 8

A more versatile instrument is the device shown in Figure 7. This is made from two pairs of arms pivoted together and carrying marking points at the outer ends. These points have a flat that precisely divides

them in two at the other end and enables measurements to be made with a vernier caliper (Figure 8). To use the instrument, the pivot clamp is loosened and the arms are moved until the flats on the points are pressed against the inside of the vernier jaws and set to the proper center distance. The pivot clamp is

# Planting Pivots

BY LAURIE PENMAN

punched mark for the first wheel, an arc can now be drawn for the center arbor pivot (Figure 9). A light tap on the other point is marked securely with a small brass hammer where this arc crosses the vertical center line and the position of the center pivot. Only one of the points is actually sharp; the one that is placed in the center punch mark has a small flat at the apex so it registers on the conical sides of the center punch mark and not the blunt bottom of the mark.



Figure 9

Another instrument is shown in Figure 10. This one is more difficult to make, but it is also more accurate because the points are carried in the body and a slide. The earlier instrument tends to allow the points to wobble between the two elements or the arm. Both instruments may be used to measure the distance between center punch marks and small holes. If you would like more information on anything described in this article you can obtain manufacturing details by contacting the author at: [laurie\\_penman@hotmail.com](mailto:laurie_penman@hotmail.com). ♦

Laurie Penman has contributed his expertise to many different facets of AWCI. He has been a clock instructor and has taught correspondence courses for the Institute. In addition, he has contributed many articles to *Horological Times*. Currently, he teaches and writes from his home in Kidderminster, England.



Figure 10

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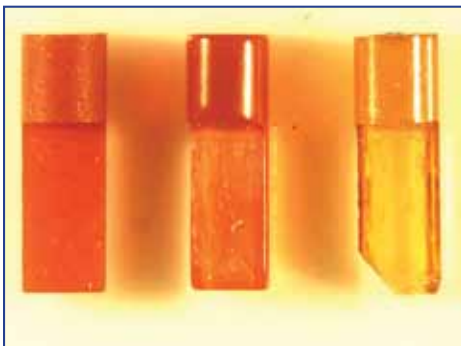
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BY BRUCE FOREMAN

## TECHNICAL NEWS:

I recently received a crystal regulator with a Brocot escapement for repair. The escapement had jeweled pallets but, one pallet was replaced with a steel pin and the other was badly chipped. After sizing the pallets, a set was ordered from a major American parts supply house. Upon arrival of the pallet jewels, I noted their color was a dull red, rather than the traditional normal ruby color of jewels.

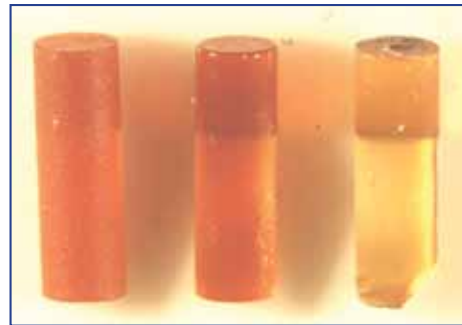
Jewels can vary in color due to their chemical composition and therefore, I assumed this was the main reason for the color difference. Before installing the new pallets, I happened to look at them more carefully under magnification and was shocked at what I saw. The new jewels were ground to the correct size, but never polished.



**Figure 1**  
Unpolished pallet jewel (left), polished replacement jewel purchased 10 years ago (center), and original chipped jewel (right).

Figure 1 shows a comparison of the newly purchased unpolished pallet jewel to a pallet jewel bought 10 years ago and the original chipped pallet jewel I was replacing. The difference in jewel color, I originally noted, was due to the fact that the ground surface of the unpolished jewel (left) reflected less light than the polished jewels (center and right). The original jewel is more translucent and lighter in color than the two replacement jewels. The original pallet jewel may also be a natural stone, whereas the replacement pallets are synthetic.

In a Brocot escapement, the flat of the pallet jewel is a non-working surface as is the portion shellacked into the pallet arm socket. The surface finish is therefore not critical on these surfaces. However, a friend of mine who collects French clocks informs me that he has seen a small percentage of French clocks that actually use the flat side. Although this may be true, the classic Brocot escapement uses the rounded face of the pallet for the working surface. Figure 2 shows the rounded working surface of the three pallets.



**Figure 2**  
The rounded working surface of the three pallets.

The Ruby jewels are used for pallets because they are hard and have a low coefficient of friction.

To achieve this reduced friction, the rubies must be highly polished. An unpolished pallet jewel will act as an abrasive stone and slowly grind away the mating escape wheel teeth, in my opinion.

I returned the jewels to the supply house explaining the problem and asked for a full refund. They refunded my money and stated they would advertise the pallet stones in the future as unpolished. I contacted a second supply house who buys their jewels from the same source. I took a chance that they might be better, but they also supplied unpolished jewels. At the third supply house contacted I asked about the source for their jewels. I was told the jewels could not be made smooth without chipping, and that they would actually work better because the shellac used to set the jewels would bind better to an unpolished stone.

It is unclear at this time if these jewels are being made in India, China or America, but I suspect they are not being made by the Swiss who have a long history of high quality jewel making. Possibly, they were manufactured under contract to one of the major American supply houses who failed to define the specification for the pallet jewel surface finish.

Whatever the reasons behind these pallet jewels not receiving a polish, the clockmaker should be aware that these inferior jewels have entered the marketplace. Please make sure you inspect any jewels you buy to be sure they are made properly before you install them. I finally found a supply house in England that had polished jewels and I was quite satisfied with the pallets they sent. If interested, this source is: Cousins Material Supply House LTD, [www.cousinsuk.com](http://www.cousinsuk.com). ♦

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BY JACK KURDZIONAK, CW21



## BENEFICIAL BLIZZARD

**A** blizzard is a snow-storm with unique characteristics that include high winds, low temperatures, reduced visibility, and lasting three hours or more. As I am

writing this, an old-fashioned New England blizzard is just concluding. I am sitting indoors in the comfort of my wood stove-heated living room contemplating the 18 inches of fresh snow deposited by the blizzard. Earlier today, the governor declared a state of



emergency and our staff stayed home in accordance with the governor's directive. My son, David, and I were the only ones who were able to be at the shop today as we live nearby. We had enough to keep us busy and we soon realized no one would be walking in through the front door. We both thought that, if the telephone did not ring today, we could actually dedicate the entire day to getting some things accomplished without interruptions. David declared us officially closed for the day and reprogrammed the telephone answering machine to advise any callers that we were closed due to the storm and to please call back tomorrow. It actually succeeded. David and I worked all day long and accomplished more in one day than we would have normally been able to do.

The comfort of the wood stove allowed me to reminisce about a time nearly forty years ago when an elderly watchmaker (who was then about my current age) told me how he sometimes closed his shop for

a week and posted a sign on his door saying he was closed for vacation. He was not really on vacation, but went to work each day to catch up on his backlog without any interruptions. At that time I never imagined there would be enough work to not only keep me, but several other staff members busy, or that I would actually welcome a genuine blizzard that would cause us to close for a day in order to get some needed work completed.

After a day's work, Dave and I went home to shovel stairs, plow the driveways and have dinner. Then I sat back to realize that even a blizzard can bring some benefits. The old idiom, "It's an ill wind that blows nobody good," explains that most adversities have some benefit for some people.



## MEASURE TWICE, CUT ONCE

Apprentice carpenters always learn the old saying about measuring twice before cutting. Simply stated, prior to cutting a board, the carpenter needs to verify his measurement data before making the board shorter. A board cut too short represents money thrown away. The board is spoiled and time is wasted. Both time and material cost money. In watch repair, just as in carpentry, you must make sure you base your decisions upon sound data if you are to successfully repair watches and solve the repair problems you will encounter. Fortunately, not every watch is a challenge. The majority of watches run very well after routine servicing by qualified watchmakers. These are not the problem watches. The problem watches are the ones that do not run

# from the **workshop**

BY JACK KURDZIONAK, CW21

properly even after undergoing servicing that includes a complete teardown, replacement of worn or damaged parts, reassembly and lubrication with all the correct oils and greases. This is where the skilled watchmaker demonstrates his abilities. This watchmaker studies the problem, compiles the data, analyzes the possibilities, and arrives at a plausible conclusion as to what repairs need to be made to make this watch run properly. Continuing with the carpenter analogy, this is where the watchmaker needs to measure twice, thrice, or as many times as necessary before doing any (figuratively speaking) cutting. The watchmaker needs to determine exactly what the nature of the problem is before attempting a solution. Solutions involve time and/or material. Both cost money. The skilled watchmaker measures (analyzes) several times before cutting (making a repair).

Contrast the above procedure with an alternative method used by some repairers. This method involves guessing and hoping. These repairers guess that they can replace part after part until (they hope) the watch functions properly again. This method often works, but the cost in time and material is usually

far too high to justify this random part replacement approach.

Old watch repair textbooks, and even some factory tech guides, have sections with lengthy checklists to help with problem solving. The cost of going through a checklist of potential problems is far too high, and when the problem is beyond the scope of the checklist, it is fruitless. This checklist approach is a variant of the guessing and part-replacing method illustrated above.

## The skilled watchmaker solves a problem by:

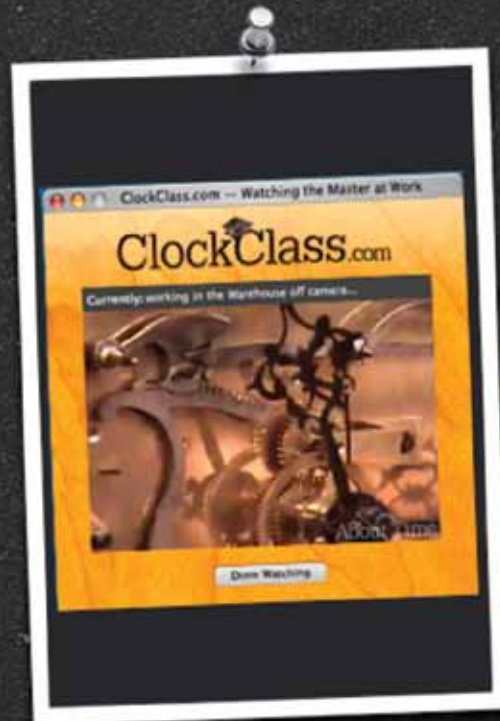
- A. Defining the problem: The quartz watch does not run, even with a new battery.
- B. Studying the situation and obtaining any possible supplementary information that may be relevant: The watch stopped and the customer took the watch to a mall kiosk for a new battery.
- C. Proposing a set of solutions based upon experience with quartz watches in general and the particular model in question: A Ronda 715 movement.

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- D. Remedying any defect found: It's missing the insulator at the base of the battery well.
- E. Testing the watch to make certain it runs properly.



In this case we find the given conditions are:

1. The watch does not run with a new battery.
2. The watch has been to a mall kiosk for a battery.

The watch had run properly for several years before stopping and the customer made the assumption that the battery needed to be replaced, hence the visit to the mall. The initial analysis yields the following: The Ronda 715 movement is relatively inexpensive. The only rational choices are to repair it quickly and economically so that it will be a reliable time-keeper again, or replace the movement. It only takes a moment to check the battery just to be certain it is OK and to ascertain the condition of the negative cell connector and the under cell insulator. If any of these are at fault, make a speedy repair before connecting the movement to your quartz analyzer to confirm its running condition. If it still does not run, try tightening the screws securing the circuit board to the movement and run a quick continuity test of the coil. This entire procedure only takes a few moments. If the watch runs within factory specs, it should run well for the near future. If it does not run at all, or fails to run within specs, sell a complete repair that includes a movement exchange.

This simple example is illustrative of the mental processes that a watchmaker utilizes when solving a problem. Experience, combined with a comprehensive understanding of how the watch functions,

is the key to solving watch repair problems. Experience teaches us where to look in a watch for faults. A comprehensive understanding of how a watch functions guides us through a repair so that we know which flaws in a watch movement are acceptable and which others are going to cause a problem. Inexperienced watchmakers, regardless of how well-trained they were in school, need to learn how to discern the difference between a cosmetic blemish and functional flaw in a watch part. Watchmakers acquire this skill as they gain experience.

Remember the carpenter who measures carefully before he cuts a piece of wood. A watchmaker who measures twice or even thrice will save both time and money. ♦

Jack Kurdzionak has been writing his *From The Workshop* column for *Horological Times* for over 15 years. He has contributed significantly to the organization in numerous ways, including serving as a former president and treasurer of AWCI and by assisting in many other volunteer capacities for the Institute.

**CLOCKS**  
m a g a z i n e

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# A Steady Rest for Pivoting

BY DAVID CARLSON

Replacing a broken pivot can be a difficult and challenging procedure. An accurate mechanical setup is essential. For example, the gear shown in Figure 1 requires a steady rest. When the pinion end of the gear arbor is captured in the headstock collet, the other end requiring repivoting is too far removed from the headstock collet for accurate drilling.

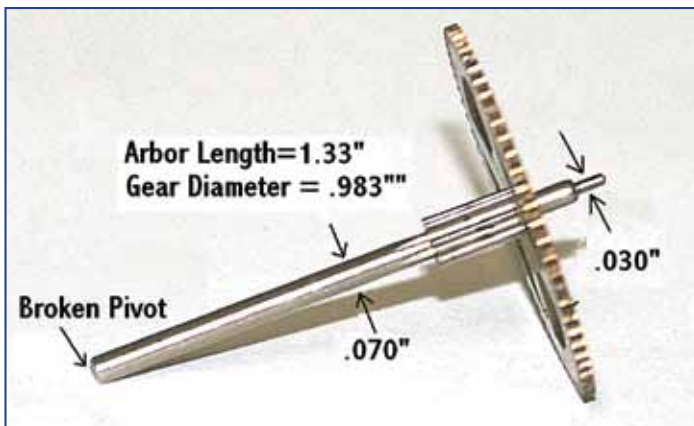


Figure 1

The steady rest shown in Figure 2 is from Cowells Small Machine Tools, England. The rest features three support arms which are fitted into milled slots on the body of the rest and held in place with cap screws. A bottom piece was added to correct the center for WW lathe applications. After the Cowells steady rest was set up for the gear in Figure 1, it provided excellent accuracy and stability for drilling the end of the arbor.



Figure 2

Unfortunately for other gears of different sizes and layouts, the set up of the Cowells steady rest was difficult, if not impossible. A new design of a steady rest that would work for all gear configurations was clearly needed, and I set out to develop a prototype that would meet the requirement.

## A New Steady Rest Design



Figure 3

A prototype of the new steady rest is shown in Figure 3. The base is salvaged from a tip-over steady rest. A 90° angle bracket is attached to the base to support the hard brass plate. Across the top of the plate are holes for KWM bushing sizes, 2, 3, 4, and 5. The bushing hole centers are all equidistant to the bottom of the steady rest base on a line which

is measured from the headstock collet center to the top of the lathe bed. The gear is set up in the steady rest and ready for repivoting in Figure 4. Detailed steps in the setup procedure follow the layout and construction of a new steady rest.



Figure 4

## Layout and Construction of a New Steady Rest

A schematic of the steady rest is shown in Figure 5. The parts for the steady rest are shown in Figure 6: a hard brass plate (1/16 x 2 1/4 x 1 1/4"), a brass base (2 1/2 x 1/2 x 1"), and three 6/32 cap screws to fasten the plate to the base. The T-slot in the base, Figure 7, was cut with a quarter inch

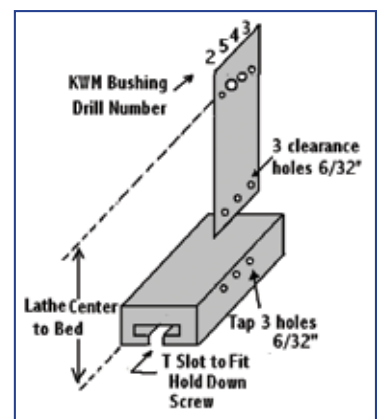


Figure 5

# A Steady Rest for Pivoting

BY DAVID CARLSON



Figure 6



Figure 7



Figure 8

end mill and the slot by a  $\frac{1}{2} \times 0.1$ " slot cutter. The head of the lathe hold-down screw should be tried in the slot to see that it moves freely.

The layout of the brass plate is shown in Figure 8. The horizontal line is scribed by carefully holding the steady rest on the lathe bed and sliding the brass plate across a male taper center collet in the headstock. The small center drill holes are the locations for the size 2, 3, 4, and 5 KWM bushing holes.

## Set-Up for Repivoting with the New Steady Rest

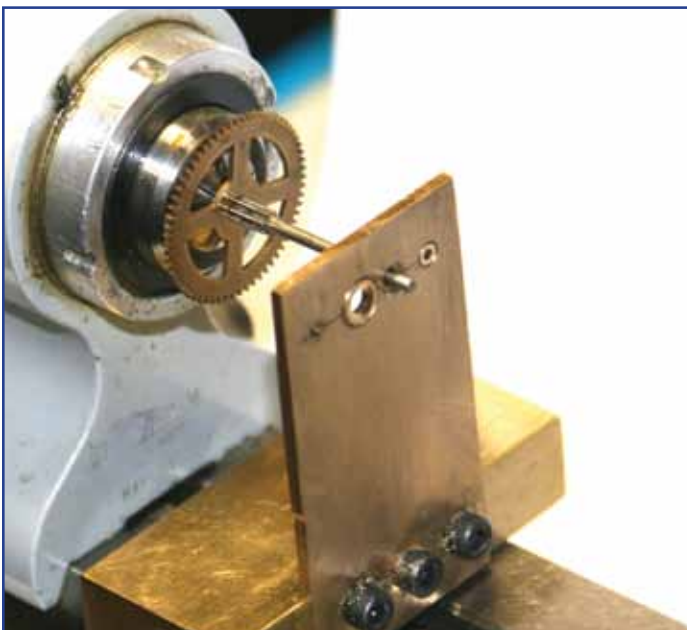


Figure 9

The steps for set-up shown in Figure 9 include:

1. Select a KWM bushing to fit the end of gear arbor that is to be repivoted. The hole diameter of the bushing should be a snug fit or slightly smaller than arbor diameter.
2. Press the bushing into the appropriate KWM bushing hole: 2, 3, 4 or 5.
3. Carefully ream the hole in the bushing to provide a sliding fit on the gear arbor.
4. Capture the end of the gear in a headstock collet.
5. With the steady rest on the lathe bed and its hold down screw in place, push the gear arbor into the prepared bushing hole. Do not tighten the hold down screw.
6. Move the steady rest into position with a small amount of the gear arbor showing and capture the tip of the gear arbor in a tailstock collet.
7. Adjust the steady rest to be perpendicular to the lathe bed and tighten the hold down screw.
8. Release and move the tailstock.
9. Put a drop of oil in the bushing. The set-up is complete and the gear is ready for drilling to accept a new pivot.

## Check for Accuracy

It is recommended to check the accuracy of the steady rest upon completion. Select a gear from your parts box with good pivots and go through the set-up procedure. After the set-up procedure is complete, insert a male taper center collet in the tailstock. Move the tailstock until the taper point intersects the gear pivot. The tailstock taper point should touch the center of the gear pivot (Figure 10).

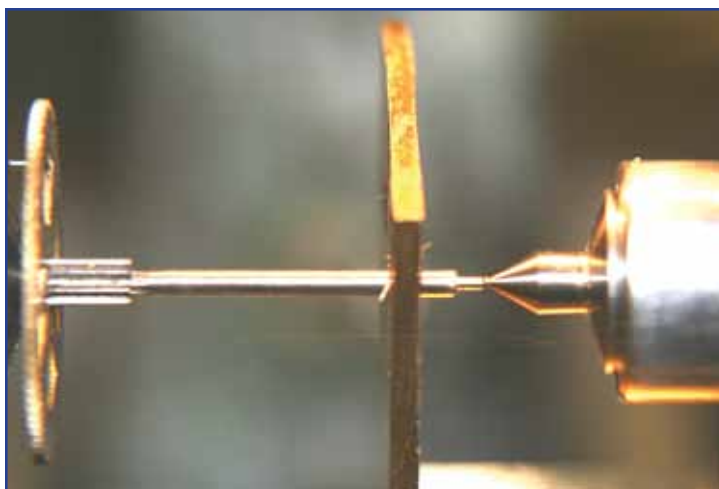


Figure 10

## If You Find Errors

A vertical error is caused by faulty layout or drilling of the bushing holes (Figure 8). Vertical correction can be made by slotting the three support screw holes in the brass plate. A better solution is to make another plate and carefully follow the layout procedure. A horizontal error is the result of sidewise pressure when the steady rest base is tightened by the hold down screw to the lathe bed during Step 7 in the set-up procedure. Repeat Step 7 to make sure there is no sidewise pressure bias.

## Conclusion

The new steady rest has proven to be very satisfactory for a variety of repivoting jobs and other lathe operations. It has returned the time spent in design and construction many times over. ♦

David J. Carlson graduated from the University of Pennsylvania in Electrical Engineering. In 1982 he passed the Indiana State Board Clockmaker exam and became a registered clockmaker. In 1986 when he retired from RCA, he formed his own business and joined AWCI. Beginning in 1992, he has written regularly for *Horological Times* and has published 42 articles to date.

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# challenging situations, part 5 **vintage hands**

BY DALE LADUE, CMW21

**R**epairing, restoring and conserving a wristwatch can involve many different techniques. While repairing and restoring can bring a watch into service again, conserving will maintain its current condition with its patina. Restoring a wristwatch or pocket watch can be challenging: It can sometimes be impossible to replace original parts that have been damaged from wear, or were broken or scavenged.

In this article I demonstrate a technique to produce hands where the original hands were not available. In the past, hands were usually purchased in large assortments of different lengths, shapes and hole sizes. Cards of a dozen pairs of hands in virtually every caliber of

studs in its catalog. This tool cuts a chamfer on an hour wheel post, shown in Figure A. The tool, in effect, produces the same result as I demonstrate in the subsequent Figures.

When a pair of hands that are proportionally correct for the dial are located, they may not fit the hour wheel or the cannon pinion. For demonstration purposes, a typical 1920s style 17-jewel movement is shown in Figure 1. A pair of nicely blued hands was in my stock. However, the inside diameters were too small to fit the hour wheel post and cannon pinion. The hour wheel posts on most vintage watches are quite robust as shown in Figure 2. Actually, in this situation the hour wheel outside diameter was slightly larger than the outside diameter of the hour hand tube.

The hour wheel post was altered to fit the hand. A brass rod was mounted in a lathe col-

let and a stub mandrel was turned down to fit tightly inside the hand tube (Figures 3 and 4). The outside diameter of the hour wheel post was then turned down to fit the hour hand. The hour hand

was tested for fit as the post was turned down. The hand was held in Rodico as it was repeatedly tested for a close fit (Figure 5). To remove any existing burr in the hand and to impart a slight taper, a five-sided taper broach was gently run into the hand tube while the hand was held in a 9-hole pliers/clamp as shown in Figure 6. The hour hand and hour wheel are shown prior to installation in the watch (Figure 7).

The minute hand needed to be broached out to fit the cannon pinion post. The minute hand was held tightly in a hand-broaching clamp. A five-sided taper broach was used to open up the minute hand hole until it fit tightly on the cannon pinion post (Figure 8). The new hands are shown on the ladies vintage wristwatch in Figure 9.

You never quite know what you might find when working on old watches. Look closely at Figure 10 on the next page. Notice the fast and slow register! ♦

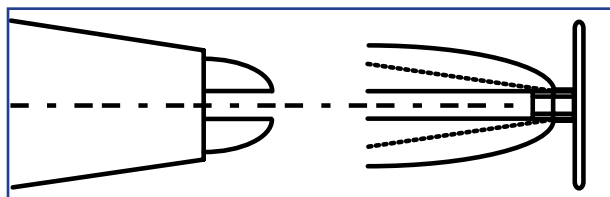


Figure A: Tip of Bergeon tool for adjustment of hour wheel studs.

production were also available. Today, Bergeon has a tool to make adjustments of hour wheel

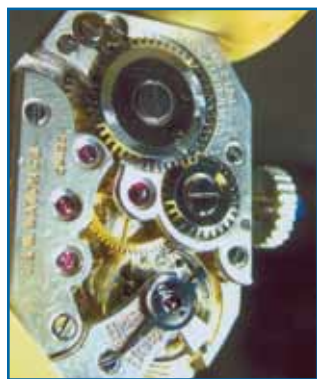


Figure 1: A ladies vintage 1920s wristwatch.



Figure 2: The hour wheel with a robust hand post and the new hand with a tube that is too small.



Figure 3: A brass mandrel was turned to fit the hour wheel.

# challenging situations, part 5 **vintage hands**

BY DALE LADUE, CMW21



Figure 4: The hour wheel was pressed tightly onto the mandrel.



Figure 5: The hand was tested for fit.



Figure 6: The hour hand was gently broached to create a slight taper.



Figure 7: The hand started on the post.



Figure 8: A five-sided taper broach was used to enlarge the minute-hand hole.



Figure 9: The new hands in place.



Figure 10: Notice the misengraved regulating scale.

Dale LaDue is a second generation watchmaker-clockmaker who has been a contributing author to *HT* for many years. A graduate of the Gem City School of Horology, he has been in business in the Rochester, NY area for nearly 30 years. Dale's work covers the gamut of "challenging situations," which are often the topics of his articles. Dale is also the current president of the New York State Watchmakers Association.

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# A Study on a Valjoux: **working on the workhorse**

BY BILLY BEST

**T**here are multiple ways to approach self-improvement. For example, a musician once was quoted as saying, “If you want to grow as a music lover, listen to music you don’t think you will like.” Or there’s another approach: If you want to learn to be an electrician, try wiring your carport. What’s the worst that can happen? With the former, you will grow as an audiophile. With the latter, you could burn your house down.

We are in this profession to make a good living, to be independent, and to do quality repairs. Do we really need to broaden our horological horizons?

The answer is: Yes. As watchmakers, what will make us grow as technicians? Working on watches that are unfamiliar to us certainly will. You may find this journey in self-improvement will take you *farther than Las Vegas on a Friday night*, but your learning doesn’t have to *stay in Vegas*. You may be able to use new-found skills and techniques to open up additional areas of your business.

In my personal business, I am a Rolex technician. I get so many Rolexes in for repair it’s not even funny. I know how they are supposed to be when I’m finished with them, and I have a good material inventory, resource library, and specialty tools. When your specialty gives you so much work that you are busy all the time, what is your worry? It could be that nagging voice in your head wondering about self-improvement. Or it might be the more familiar one that asks, “Is this all there is?” I also compare myself to my peers: “Other watchmakers are doing new things, so why can’t I?” I realize that expanding my horizons will involve expenses and, worst of all, homework. But it seems I succumb every time and eventually I decide to push my horizons to try something new.

So the first thing I did to begin my educational venture was to buy one of those movements I was unfamiliar with: The ETA-Valjoux 7750 (Figure 1). It’s the workhorse of the industry, the one you hardly see as a Rolex technician. I have text books I have studied since the 1970s, which are, of course, editions from

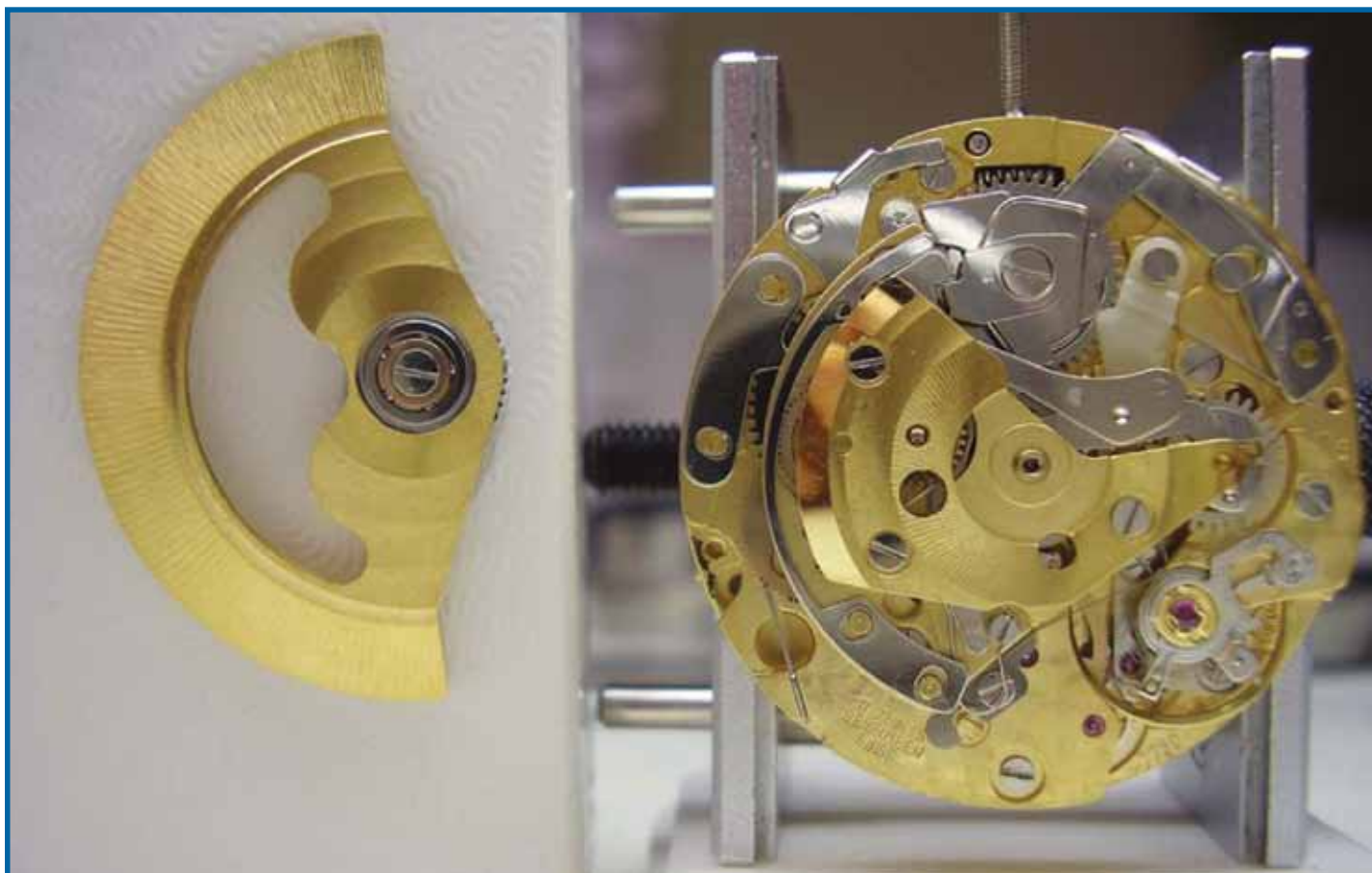


Figure 1: Movement before installation

# A Study on a Valjoux: **working on the workhorse**

BY BILLY BEST

the 1950s. Good resources, but what I needed was up-to-date resources. First things first, I ordered a new textbook. Then from some good advice, I got a Valjoux 7750 as a practice study.

I started the work of familiarizing myself with the new movement. I had worked on chronographs satisfactorily, so I didn't think it was a stretch for the Valjoux. The task at hand was to disassemble the movement without scratching, losing or breaking anything; however, on the first disassembly, I broke a pinion, left some marks on a bridge and spent time on the floor looking for a spring. I soon became familiar with this complicated watch movement.



Figure 2: Case kit

My continuing education seminars had instructed me on procedures for how to deal with the problems described in the last paragraph, so the homework progressed until I was able to disassemble and reassemble with no problems. After that was done, my homework, study and practice languished with the coming of Spring. The lag continued through the summer as we all enjoyed school off, vacations, and activities I like to do other than work.

The Valjoux languished for a few months in the top drawer of my home shop bench, as did my new textbook, until I was looking at a trade manual and spied an ad for watch kits for all kinds of movements. I saw big pocket watch movements, all types of automatics, skeleton movements and a full line for a Valjoux 7750. The page contained regular-sized steel cases, gold-plated cases, and a big 44 mm coin-sided case with an onion crown which looked good in the ad,

but was expensive (Figure 2). I thought about the expensive movement I had sitting in a drawer and made the decision to get a kit for it. The justification was that, to really get the movement to perform correctly, I must case the watch with all the hands. I also needed to get the dial installed and return it to running condition to make sure everything was functioning correctly.

The watch kit was ordered. It came with hands, a case ring, crown and a black dial. This would be ideal practice for casing because nothing can hide from this color. The case itself was big and beautiful and would make an impressive watch to wear. And, it would be the coolest, because, when asked where I purchased it, I could say, "I built it."

In addition, I took a few evenings to upgrade the surface of my home bench. I needed a place where I could do homework and practice, being comfortable in a space that was not my usual shop. This would also aid me when I needed to increase production of my regular work and to practice on lathe training—all things I cannot do undisturbed at my office at the retail store.

To make the trip out of my comfort zone as comfortable as possible, I used a draftsman cover made in Denmark. It was made of the same material as the familiar green work mats that come from Bergeon. With the cover and some double-stick carpet tape, I had a new work/study space. Topped off with my high-definition radio, I was ready to work, study and practice. As every watchmaker does, I organized three sets of everything needed to equip my shop at home. Equipment just needed to be washed or lubricated, such as tweezers, screwdrivers, oil cups, plus various hand tools required for work. They all had to be inspected and resurfaced so as not to make any blemishes on the study timepiece. I managed to complete these tasks in an evening. Finally, all hand tools were ready with good surfaces and blades ground, and loupes were wiped with anti-fog solution.

My practice work would start in the evening with a cup of coffee after supper. It progressed nicely with my environment just as I needed it and with all my references there at my disposal. I started, as I do with any complicated piece, by taking down just one system at a time. The automatic system was disassembled and reassembled. No lost parts or scratches

# A Study on a Valjoux: **working on the workhorse**

BY BILLY BEST

this time. Then, of course, disassembly of the upper movement began. When it was all together with no screw slots galled, it was time to call it a successful night.

Later that week I started a new homework assignment involving a complete stripping down of the Valjoux—both sides this time. The procedure went well. My home environment was working out better than I expected. Even my references were helpful in keeping blemishes to a minimum. My homework went well in the evenings. With my new precision oilers, the assembly and lubrication went just as I planned. There was no seepage where you can see and no stains on bridges and plates. All in all, it was a good job for the expensive tools which can pay for themselves when they make the watch look pretty.

As we all realize, when you make mistakes, you learn—and when you make expensive mistakes, you learn well. These mistakes are actually the best kind because you only make them once. Both of these things happened to me while assembling the watch movement. As it turned out, there is a driver cannon pinion (240) on the 7750 (Figure 3).

When testing the functions of the setting it seemed that the hands were not moving, so I thought I had left out a wheel. A quick look in the service manual noted the offset pinion was not to be washed—a symbol I recognize now. I remembered that my instructors always stressed I should read the manual before I started. All my attempts to re-lube it were unsuccessful, and in trying to do this, some marks were made on the plate. It was not good, but it was a lesson well-learned. A new part had to be ordered.

This was not the end of my learning, as I was to discover. A chronograph wheel (8000) shown in Figure 4 had a slight bend at the end of the pinion. Although the necessary material was available and was sent to me promptly, the invoice told me the lessons were well-learned, indeed. At \$49 a wheel, my self-tutorial was progressing and would have cost the shop nicely. It was time to bring down the lathe and collets. Thank goodness for my lathe skills because I straightened out the wheel with no trouble.

With all components redone and the sensitive parts given the attention they needed, the movement was assembled, tested, and cased. My new study watch



Figure 3: Driver cannon pinion 240



Figure 4: Chronograph wheel 8000

looks good and is accurate. I now can disassemble a 7750 and put it back together with no trouble. Sensitive assembly, with as little evidence as possible, is now the norm (see Figures 5 and 6). This study was hardly any trouble and did not cost a lot.

Why did I choose to do this myself? I'm not sure—things just developed this way, as do other phases of my career. The trick is not to be afraid, to research your project well, and to make sure this is the way you want to do it. All in all, the expenses were minimal compared to the lessons learned. When you come from a family of restorers, it just seems to work out best this way. ♦

**Background Information:**

1. Movement ordered from Cas-Ker Company Inc.
2. Case kit ordered from Otto Frei Inc.
3. Bench cover purchased from Southern Graphics, Roanoke Virginia
4. *Theory of Horology* textbook from AWCI
5. *Complicated Watches and Their Repair*, by Donald DeCarle
6. *Bench Practices for Watchmaker*, by Henry Freid
7. Precision Oilers (4) from Cas-Ker Company
8. High torque screwdriver blades from Cas-Ker Company
9. *ETA 7750-7765 Technical Communication*, Swatch Group  
(see [www.awci.com](http://www.awci.com) under "For The Watchmaker")
10. *Precision Oiling Techniques* study guide by Thomas Schomaker, AWCI Instructor



Figure 5: Finished watch (front view)



Figure 6: Finished watch (back view)



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## A MEMBER'S PASSING: Les Smith

Les Smith, who passed away at the age of 82 in December, 2010, was a former AWI president (1979 and 1980). He was instrumental in organizing the Greater Cincinnati Watchmakers Guild, an AWI Affiliate Chapter. As a charter member of AWI, Les served on the Board of Directors for several terms. A recent recipient of the AWCI Outstanding Achievement Award in 2010, he also wrote articles for the watchmaking profession for *Horological Times*.

Les trained hundreds of AWCI members on quartz watches and was one of the original traveling instructors for AWCI on Seiko products, such as the Digi-Ani and Two Timers. His courses were often taught to large groups of watchmakers, sometimes to as many as 40 or more students at once. Les also volunteered many hours at the Ohio Valley Watchmakers Institute (originally the Gruen school) in Greater Cincinnati. He owned and operated L. L.

Smith Jewelers in Greater Cincinnati for 50 years. Les was always willing to pitch in and help whenever anyone needed help. His volunteer work and his assistance to AWCI will be greatly missed.



Les Smith Receiving Outstanding Achievement Award



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[www.watchandjewelryreview.com](http://www.watchandjewelryreview.com)

### Watch & Jewelry Review

is published 10 times per year. It is the only trade magazine in the United States devoted to watches and clocks, and we have added a separate jewelry magazine in every issue. Get the one complete source of industry news and features, including eight annual directory issues.

# How Education Impacts Your Bottom Line

BY JERRY FAIER, CMC21

It's always good to hear from many of you each month. Your comments help set the content for this column. It is my goal to help as many of you as possible improve your skill set, whether you certify or not. I also want to help you build a strong business. As we continue to lose our senior resources (last month was marked with the passing of Les Smith, a past president of AWI), there must be replacements for these professionals. We want to continue to support our trade and this organization with the qualities they embodied. Think of our industry as a big family. As the "parents" pass on, it becomes our responsibility to continue the traditions. Are you ready? What follows is a range of information that may help in your education and ultimately, lead you to stronger business practices.



## CONSIDER THE VALUE OF RESEARCH

Let's start with how the S&P can help you develop yourself. Also, please keep in mind there is not room in this column to lead the reader to all the details on any given point. Instead, I want to stimulate you to do some thinking on your own. That is my teaching style. Often there are several ways to do some task, but which way is the best often has more to do with the individual. The S&P sets the guidelines for what is acceptable, but it is up to you to develop the needed skills to accomplish the task based on the S&P. This way, I can ask questions that guide you to pursue your knowledge, and not just give one current answer—today's current answer may be tomorrow's wrong information!

The complete S&P's can be found on the AWCI website under:

### SERVICES/EDUCATION/CERTIFICATION

Each downloadable S&P can be found under:

- Certified Watchmaker 21 Examination
- Certified Clockmaker 21 Examination

Since the only thing we can count on is change, we must arm ourselves with the one skill that is our most precious and priceless tool—research. If I learned anything from my studies in college, it was how to find the answer myself through research, either from the writings of those before me, or through my own testing trials at the bench. Sometimes, if I followed the work of predecessors, I got the same poor results they did. Often I found I needed to forge on my own anyway. One of my old apprentices once asked me, "Jerry, I hear you answering questions from people all over the U.S. every day, but where do you go to get your questions answered?" When I come up against a problem, sometimes the only way to get a question answered is to set up an experiment and run trials to see what happens.

## THE ADVANTAGES OF PROPER TERMINOLOGY

Also, I want to address the issue of language use. As a professional, I try to use and ask those around me to use the correct terms when discussing or describing a problem. I just hate the word "verge" applied to any type of escapement anchor. There are strap pallets, pin pallets, anchors, and Villiamy anchors, but only the crown wheel is mated with a "verge." If you are talking about a recoil anchor, then say so! Don't call the strap pallets a verge—it's not. In the December, 2010 column, for those of you who work on watches, did the terms "waterproof" vs. "water resistant" give you a start? This is the type of question I like to ask because it is something your customer is likely to come up with, and it's your job as a professional to set the record straight. How else is the customer going to learn if you don't speak the language correctly?

Another one I just love is when the customer (even another "professional") calls and says my floor clock is not "chiming" correctly. What they mean is that it's not counting the hours correctly (what we call "striking"). One is a problem I can correct over the phone, but the other requires a house call to correct.


# How Education Impacts Your Bottom Line

BY JERRY FAIER, CMC21

Do you know which is which, or do you just make the house call and waste the customer's money? There is more profit in educating a customer than running around and doing it for them. It's like the old parable, "Give a man a fish...". I generate more business through customer education even when I don't get the job, because that person tells his friend to visit us and get educated before he allows someone else to fix his clock! That's the customer you want—they will take care of the work you do and make sure it is kept up as required. It's a disposition that is easy to talk about, but hard to master. Work on it and see if it doesn't help your bottom line.


## HOW WATCH TECH SHEETS CAN HELP

This month's S&P study for watchmakers brings me to the top of page 18 of the watch S&P and two items pop up. One is the use of tech sheets (manufacturer's specifications) and the other is lubrication. One of your assessment requirements deals with your ability to read and use these documents to restore a product back to its original state. Most sheets are fairly difficult to read until you have a problem, and then they are a blessing to help solve the problem. Also, this is the easiest way for a manufacturer to communicate a lot of data to thousands of watchmakers without holding classes for everyone. It's critical that



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# How Education Impacts Your Bottom Line

BY JERRY FAIER, CMC21

you master combing through these types of papers. Do yourself a favor as you read and keep track of important points, including:

- The order of disassembly and assembly
- Tension information
- Engagement or depthing information
- Oiling

**You'll also want to consider vital aspects, such as:**

- What items make take-down-to-clean and reassembly faster
- What level, type and placement of lubrication are critical to the movement

As you log this information in your head and variations of the same movement come to your bench, your speed of service increases exponentially. Take a tech sheet for a movement which you already have an understanding of and see how many new ideas or techniques you can garner from working through the tech sheet with the movement as the factory suggests. When it tells you to NOT oil the top pivot of

the rotor, but you do, put it on the timing machine and see what happens to the rates. Like a timing ticket I use to log results for time trials, you will soon see patterns of production that can guide you in future work. A professional has a head full of this type of information and is not afraid to use it.

## THE VALUE OF ROUTINES

Another idea along these lines is to use regimens or routines. Develop a routine or regimen for each type of movement you do. I know when a customer brings in a Seth Thomas #89 (or a Hamilton 992B) movement and it shows previous bushing (or jewel) work, I will have to watch out for depthing issues. I also want to return the pallet lift angles (strap pallet type, half-deadbeat) because they usually come in incorrectly ground. In the case of the 992B, there is nothing like a movement which has had a banking pin broken off. This helps with estimating, and most of all, when that bad boy hits the bench, I follow my routine so I don't miss a thing. That makes the job cost lower because I'm not missing items as I go

through—they are on my regimen list. More bench men and women lose valuable time as they go back and forth to make sure they didn't miss something. Develop a routine for a product and it will make you money.

For the clockmakers, let's expand this idea of regimens with respect to lantern pinions (page 22 of the clock S&P). When you see 2-4 wires of a lantern pinion (with 8

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# How Education Impacts Your Bottom Line

BY JERRY FAIER, CMC21



leaves) that are badly worn, do you drill them out, fight to close the hole and then struggle to get everything back solidly, only to have a wire slip out on the customer later? Maybe you would be better off gently lifting a shroud and then redoing all the wires. Are you sure that other wires are not worn? And if the shroud slips on the shaft, what will you do then? Glue it—or

worse—solder it? What happens to brass when it's heated? If you've never studied metallurgy, I'll give you a hint: Heat softens brass, and if you stick hot

brass in water to cool, it gets mud soft! Now what? If you've developed a regimen to handle these types of problems, you can just do it—and do it right!

The overall message of this column is that it's never too late to learn or develop good habits. See if your current habits are generating you money or slowing you down. After all, your bottom line depends on it.

I want to thank all of you for your support. I have retired as the Education Committee Chairman, but not from clockmaking or the world of horology.

We'll talk again sometime! ♦



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BY DAVID CHRISTIANSON, CMW21, FAWI

## QUESTION:

I have a clock customer with a somewhat unique clock framed like a picture, and the whole frame sits inside a cavity in the wall. I have included a few pictures. I am hoping to learn of its origin and background. I believe it is French and has a silk thread suspension. There are no markings on the face, none on the back of the movement, and none that I could see on the front of the movement. I have not removed the dial to date. Is there anything you can tell from the pictures provided?

Dan Galdun  
Huntsburg, OH

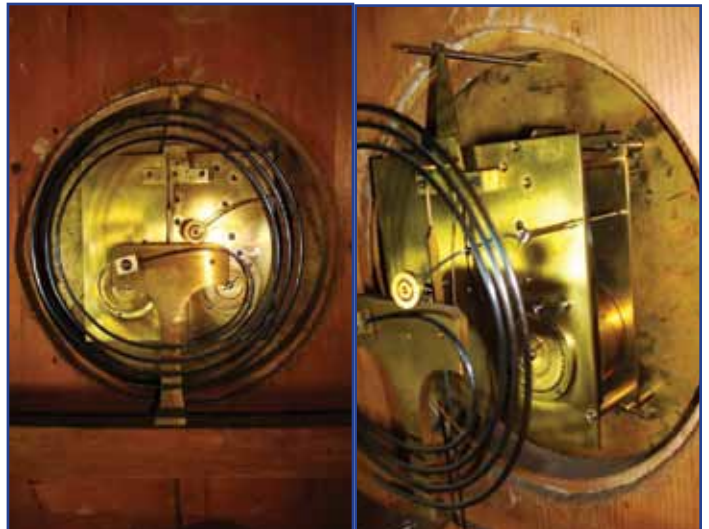
## ANSWER:

Your very unique and well-crafted picture frame clock could have been made in either France or Austria. The similarity in movement styles and craftsmanship is nearly the same. One could argue its origin in either country, but I tend to think it is Austrian, and more specifically, Viennese.

The silk suspension was in use in Austria in the early 1800s up to about 1830–35. By this time the square plate movements were out of fashion in France where they were using almost exclusively the round plate movements for smaller hourly and half-hourly striking clocks after 1800. The gong base is a typical Austrian style, whereas the hammer head is typical to both countries. The picture frame clock was very popular in Austria between 1820 and 1840, and although not unique to Austria, it was a distinctly Austrian style.

The leading makers in Paris and Vienna set the styles for movements and cases and their influence trickled out to makers in the Provinces. The further from the center, the later these new styles appeared and the longer they remained in production. So it is not to say that your clock could have been made later than 1830-1840, even by a provincial maker in France who had not adopted the latest round movement style, but the makers in the provinces generally did not produce the fine quality your clock exhibits.

As a point of interest, the picture frame clock should not be confused with the picture clock which is an actual painting with a working clock appearing somewhere in the picture, usually in a church steeple or public building tower.



Send your Questions to *Horological Times*  
701 Enterprise Drive  
Harrison, OH 45030  
magazine@awci.com  
866-367-2924 ext.307

BY DAVID CHRISTIANSON, CMW21, FAWI

## QUESTION:

Judging from the push/pull pins around the dial and mechanism in the rear of this clock, I guess it would be some kind of time clock but don't know for sure. The clock originally was designed to hang on the wall, but someone put little feet on it so that it could stand alone. The balance wheel and escapement are free but both springs are tight and no doubt set. On the dial side left of center down low is a push button which is spring loaded, but I can't see that it does anything from the inside. This old clock was in all likelihood in a box in the barn for the past 75 years or more.

Robert Roll  
Clintonville, PA

## ANSWER:

At first I thought your clock was a timer for some kind of electrical appliance. I showed your photo to a colleague and AWCI member, Tim Schlotter. He suggested it might be an early hotel wake-up alarm where the desk clerk would key in the requested wake up time and at the appropriate time the clock would ring a bell (via a wire connection) in the guest's room.

With this suggestion, I investigated early wake-up alarms and learned that your clock was probably a part of larger mechanism mounted in a cabinet with a panel of room tags and electrical contacts. Unfortunately, the previous owner removed the clock portion and converted it into a shelf clock!

Beneath the dial there should be a pointer attached to the hour wheel. The exposed brass minute hand on the front of the dial extends to the brass contacts that can be raised and lowered by the outer ring of push/pull buttons. There are 48 of them. The minute hand moves over the contact points every 15 minutes. The movement itself is part of the electrical circuit. When the minute hand, contact button, and hidden hour pointer reach the designated wake up time, the appropriate room's bell rings.

Many of the known wake-up alarms used a series of brass contacts and brass tags to make up the right combination of time and room locations to make the electrical connection. Yours has that outer ring of push/pull buttons that programs the desired quarter hour. Without the rest of the mechanism I have no idea how your clock would have known which

room's bell to ring or how the wake up time was programmed. I do know the system was powered by a battery or low voltage transformer.



# Time is money.

Knowing how to properly repair watches and clocks saves time - while also generating additional traffic and profits. It also helps to protect and enhance the brands you promote as well as your reputation and integrity. Expertise through formal training is available through AWCI, and demand is growing! We invite you to learn more about the CW21 and CC21 certification programs now available and hope that you will be as excited as we are about our other certifications currently under development.

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*“This is a wonderful opportunity for anyone who wants to take the CW21 exam. Tom Schomaker has a gift for teaching.” Student in the Modern Mechanical Chronograph, Servicing & Adjusting Class, October, 2010*

## AWCI Academy of Watchmaking Class Schedule

AWCI is offering a series of 5-day watchmaking classes. Each 5-day block will cost \$725; 3-day block is \$435.00. All classes are held in Harrison, OH. For additional information call toll-free: 1-866-FOR-AWCI (367-2924), ext. 303 or e-mail [education@awci.com](mailto:education@awci.com). Class information is also available online at [www.awci.com](http://www.awci.com).



Jan. 31 - Feb. 4, 2011	Modern Automatic Watches
Feb. 28 - Mar. 4, 2011	Servicing & Adjusting the Swiss Lever Escapement
Mar. 7 - 11, 2011	Balance Staffing & Timing
April 4-8, 2011	Basic Quartz Watch Repair
April 11 - 15, 2011	NEW Class! Modern Watch Lubrication
May 9 - 13, 2011	Basic Watch Repair
May 16 - 20, 2011	Modern ETA Calibers - Alessandro Betti
	<i>Please be aware that this is a special class and is still subject to change. We will post the information as soon as available.</i>
June 13 - 17, 2011	Servicing & Adjusting the Modern Automatic Chronograph
June 27 - July 1, 2011	Special High-Grade Automatic Class with Kari Halme - Title still to be announced. <i>This will be a VERY advanced class with strict prerequisites.</i>
Sept. 12 - 16, 2011	Servicing & Adjusting the Swiss Lever Escapement
Sept. 26 - 30, 2011	Balance Staffing & Timing
Oct. 10 - 14, 2011	NEW Class! Modular Chronograph (Featuring the Vertical Clutch System)
Oct. 17 - 21, 2011	NEW Class! Polishing & Waterproof Testing

AWCI Watch Repair Course schedule is subject to change. Seats may become available for the classes; please contact AWCI to be added to the waiting list.

## AWCI 21st Century Certification Exam Schedule

Visit AWCI's website for complete information on the 21st Century Certified Watchmakers Exam. To register for an exam or for more information call toll-free: 1-866-FOR-AWCI (367-2924), ext. 303 or e-mail [education@awci.com](mailto:education@awci.com).

February 7-10, 2011 AWCI Training Facility, Harrison, OH  
 March 14-17, 2011 AWCI Training Facility, Harrison, OH  
 May 23-26, 2011 AWCI Training Facility, Harrison, OH

**Please Call AWCI for Available Dates.**

AWCI Watch Certification schedule is subject to change. Seats may become available for the exams; please contact AWCI to be added to the waiting list.

### 21st Century Certified Watchmaker

AWCI congratulates these members who have successfully completed the AWCI 21st Century Certified Watchmaker exam.

Bettein, Theodore	Clearwater, MN
Culp, Joshua	St. Paul, MN
Drew, Victor	St. Paul, MN
Halverson, Aaron	Circle Pines, MN
Hartman, Ellen	St. Paul, MN
Hood, John	Austin, TX * passed in November 2009
Jones, Eric	St. Paul, MN
Lam, Dung Duc	Herndon, VA
Luabun, Manu	Annandale, VA
Mullican, Larry	Oklahoma City, OK
Simmons, Colin	Lakeland, MN

## Active Winter Meetings Keep Everyone Busy

The Minnesota Clockmakers Guild (MCG) winter meetings were full of activity and good information. Elroy Anderson showed several shafts and parts from an E. Howard Tower Clock he is rebuilding. His goals is to get ideas for how to correct various problems.

Ken Danner showed a small carriage clock and a 400-day movement to garner ideas on repair techniques. Additionally, Susan Wood demonstrated a bushing machine with a steel base plate that had three magnetic stand-offs to support a plate when reaming the holes for bushings. And what more fun could a group have than picking up all the tiny pieces spilled during a bushing discussion?

### FUTURE MEETING TOPICS:

- March 3, 2011 – Pivoting Polishing Machine with Ron Saboe
- April 2, 2011 - Joint Symposium with Minnesota Watchmakers-Clockmakers Association (MWCA)
- May 5, 2011- Building the half-deadbeat strip pallet, a hands-on session with Susan Wood
- June 2, 2011- E. Howard tower clock with Elroy Anderson
- July 7, 2011 – Making a one-brick forge



Ken Danner explains the special needs when busing a 400-day clock movement.



Richard Zielike setting up a two wheel and pinion in a depthing tool to locate correct pivot hole locations.



Elroy Anderson explaining some of the problem pieces needing work on an E. Howard tower clock.



What would a bushing meeting be without a little spill to get everyone on the floor picking up the tiny pieces?

### What's Happening At Your Meetings?

To share info on your local Affiliate Chapter meetings contact:

Amy Dunn, Editor

*Horological Times*

[adunn@awci.com](mailto:adunn@awci.com)

866-367-2924, ext. 307

BY RON LANDBERG, CW21

## *Timepiece Machines*, John Simonian

*Timepiece Machines* explores the connection and admiration between the automobile, yacht, airplane and the smallest machine, the watch. *Timepiece Machines* is a beautiful coffee table style book with 304 pages and over 200 stunning photographs. The book is made up of photos of supercars, luxurious yachts, jets, and, of course, watches. It's divided into three sections: Road, Sea, and Air.

John Simonian, the owner of luxury watch boutique, Westime in Los Angeles, is the editor. The book contains text in English, Dutch and French and is a quick read, highlighting specific cars, races, yachts, planes, events and the watches associated directly to them. Watch brands pictured include, Audemars Piguet, Blancpain, Breitling, Cartier, Chopard, Girard-Perregaux, Hublot, Jaeger-LeCoultre, Parmigiani, Richard Mille, Wilhelm Rieber, Corum, IWC, Ulysse Nardin, Bell & Ross, FORTIS, MB&F, OMEGA, and URWERK®.



CORRECTION: We mistakenly attributed the Book Reviews on *The Rolex Report* and *Beginners Guide To Pocket Watches* on page 34 of the January, 2011 issue to another author. These book reviews were contributed by David Fahrenholz.

## Technical Discussion & Parts Forum



The American Watchmakers-Clockmakers Institute Technical Discussion & Parts forum is available online at [www.awci.com](http://www.awci.com). Just click on *Technical Discussion and Parts Forum* in the blue box. Guests are free to browse our topics and posts but only validated AWCI members will be able to actively post messages and communicate with one another via private messaging. The purpose of this forum is to aid our members in finding watch parts, clock parts, and tools, and to enable members to discuss technical issues. This forum is not open to generic advertising posts; therefore, web addresses and e-mail addresses should not be included in public messages.

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Contact: Amy Dunn, [adunn@awci.com](mailto:adunn@awci.com), 866-367-2924, ext. 307



## Here's a Fun Idea: Tourbillon Cufflinks

Whether you're a watchmaker, enthusiast, or just appreciate unique fashion ideas, these new tourbillon cufflinks are sure to be a talking point when worn. These tourbillon cufflinks are encased in a cage of steel with an array of carbon details. The watch-making mechanism is in perfect working order and your eye is drawn to the horological display showing through the transparent crystal "watch case."

Not only are these Swiss-made cufflinks crafted with precision and quality, they are designed with two stems which accentuate the functional aspect of the piece and prevent it from rotating in the shirt cuff. A precision spring clasp anchors it firmly to the shirt.

These cufflinks are air and water-tight and resistant to shock. Each pair is individually numbered. The diameter is 20 mm while the weight is less than an ounce. These unique accessories can be purchased in a box containing the 6 different pairs below for around \$4,000, or can be ordered individually. For more information contact: Totally Worth It at [info@totallyworthit.com](mailto:info@totallyworthit.com).



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## "Tip of the Day" from *InStore Magazine*

### work smart

**Pay your sales associates a commission for selling a repair.**

**WHY?** Repairs, when priced properly, can be a great profit driver, but most sales associates have little incentive to push them.

**HOW?** If you don't have a commission system in place for repairs, do it now. If you do, but it's only paying your sales staff cents on the transaction, bump it up a chunk.

SOURCE: David Geller, *InStore Magazine*, 1.11.11, 45 W. 45th St., Ste 808, New York, NY. 212-981-9625.



## EXCLUSIVE WRISTWATCHES CREATED FOR FRENCH SKI RESORT

Fine watch manufacturer, MCT of Geneva, Switzerland, was recently selected by the prestigious Hôtel de Charme Les Airelles ski resort, in the French Alps, to create two unique His and Hers diamond-set timepieces. These *Sequential One* wristwatches will be available exclusively for the clientele of the Les Airelles hotel.

MCT is a privately-owned fine watch company that typically manufactures 50 exclusive watches a year. As an independent watch brand, they use their own mechanical movements assembled by their watchmakers, Jerome, Baptiste and Alexandre. The company notes that this demands an enormous financial commitment from a small company, but they believe an in-house mechanical movement is the mark of authenticity for any serious watch manufacturer. The *Sequential One* wristwatches proved to be quite an engineering design challenge, requiring over two years of intense development.

### Sequential One Technical Details:

- Case: 18k white gold case
- Jewels: Ladies: Bezel set with 88 white diamonds (1.35 carats), dial set with four diamonds (0.095 carats), folding buckle set with 52 diamonds (0.369 carats). Total of 1.814 carats of white diamonds.
- Men's: Bezel set with 88 black diamonds (1.35 carats)
- Movement: MCT mechanical hand wound caliber
- Complication: Sequential One
- Balance Frequency: 18'000 BPH/2.5Hz
- Power Reserve: 40 hours



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MOSSANITE = BLUE and METAL WARNING = RED.

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## Letters To The Editor

### Highlights from an E-mail Response on the December, 2010 *HT* issue

I know you cannot make all the people happy all the time, but I'm sure happy. Once again, the *HT* is outstanding! [I enjoy] the ongoing articles by Paul Loatman on making a watch, and Laurie Penman's [articles on] escapement. Paul Loatman is a fine example of a can-do attitude of a young man, and [there is] knowledge and wisdom Mr. Penman is passing on for future craftsman, like the craftsmen of the past who had outstanding articles (Mr. Huckabee and Mr. Perkins).

Although I no longer engage in the employment of watch repair, I keep active with my hobby machine shop and the building of Mr. Huckabee's regulator clock. (Mr. Porter's clock is running on the living room wall in a Georgia cypress case.)

The article on the Chapter One Wristwatch is also interesting. I found a video of it on YouTube.

Leon Sanger, CMEW (retired)

### The General, the Pope and the Missing Watches

In 1961-62, DDB, Bulova's advertising agency, recommended approaching world leaders to tell them about Accutron, the new timekeeping invention, and to get them to wear one. General Bradley was asked to request an audience with Pope John, XXIII. Once they were face-to-face, Bradley took his Spaceview off his wrist and began his little lecture. The Pope, however, took the watch from him and it disappeared into [the Pope's] pocket. He was more interested in [continuing to discuss] world events with the General. A special gift model in a platinum case had, however, been prepared as a gift, and Bradley was ready to present it, but the Pope had other ideas, taking the watch and again placing it in his pocket!

Perhaps this was the first time the General was defeated!

Harold L. Rapp, CW




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### Corrections:

The following is a paragraph that was inadvertently edited out of long-time AWCI member, Past President, and Fellow, Ewell Hartman's, *The Way It Was* article (August, 2010, page 6).

Today our organization is facing serious financial and membership challenges. "Band-aid" approaches will not save our much-needed organization. We must have leadership who is willing to act in the best interest of our members—not themselves. This will require decisions and actions that are distasteful and maybe even a bit embarrassing; the alternatives, however, could eventually be even more devastating.

Addendum to the Correction: According to Jim Lubic, Executive Director, "This statement by one of our elder statesmen will be taken seriously by AWCI leadership during this year's meetings."

In the January, 2011 issue article, page 12, in *Personal Observations of a Renata Factory Tour*, the section referencing anode and cathode segments of silver oxide batteries should read:

First, the battery-numbered cathode side of the canister is filled with silver oxide. The silver oxide is then covered by a membrane. A prescribed amount of electrolyte solution is added by high-precision dosing. The battery is then capped with the anode side of the canister and closed to seal it.



## INTERESTED IN WRITING FOR *HOROLOGICAL TIMES*?

### Guidelines for Contributing Authors

#### Horological Times

The *Horological Times* (*HT*) print magazine is a unique publication. It is written predominantly for members by members. The magazine strives to provide technical and horology-related information that is important to the watch and clock repair business. *HT* is mailed monthly to members, libraries and the industry. There may also be additional digital distribution on [www.awci.com](http://www.awci.com) or the AWCI Facebook page.

#### Compensation

We are a not-for-profit trade association. However, a small Appreciation Fee can be paid for published articles based upon length, technical content and artwork. This Appreciation Fee ranges from \$50 to \$200 per article.

#### Review

The *HT* Committee reviews articles submitted for publication to ensure they meet the technical and editorial specifications of the magazine. The review committee is comprised of AWCI members who are active in the field of horology and have extensive knowledge in watch repair, clock repair and related fields. Occasionally, articles are submitted which cannot be published. In those cases, we acknowledge receipt and give the writer specific reasons for declining the article in hopes that the writer will take our comments and revise the article to meet the specifications of the magazine.

#### How to Submit Articles

We prefer that articles be submitted via e-mail. Text can be accepted in Microsoft Word or other text-based format. We request high-resolution digital photos and illustrations for printing at 300 dpi. We prefer that each digital file be at least 2 mg in file

size. We can accept files in .tif, .gif, .jpg, .pdf and other formats, but we cannot accept visuals in Word or .rtf formats. High-quality visuals may also be mailed as original art to be scanned, although e-mail transmission of digital files is preferred.

If you would like to write more than a one-time article, we will accept an article series. For approval of a series, please submit the first full article, as well as an outline of subsequent articles.

#### Cover Material

In addition to articles, *HT* will accept cover material. Cover material should be horology-related and should be submitted along with an article about the item featured.

Contact: Please contact the Editor for more information or to send a proposed article:

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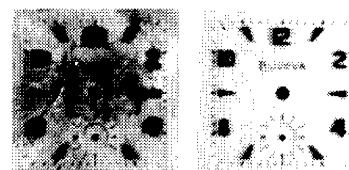
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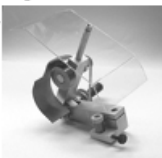
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