

HOROLOGICAL TIMES™

AMERICAN WATCHMAKERS-CLOCKMAKERS INSTITUTE

JANUARY 2011



ISSUE highlights

**This Month's Focus: *Environmental,
Health & Safety***

Workshop Safety Checklist

To Your Health: Sitting in Motion

The Move to 0% Mercury Batteries

Safer Chemicals for the Horology Industry

Chemical Storage and Disposal

Finishing the Pallets

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29.0	MPP100/29.0	24
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a message from the president

BY MARK BUTTERWORTH



As your current President, I try to convey my thoughts on what is most important for our members to hear. Our Executive Director, Jim Lubic, does a fine job articulating the activities in the organization that impact our members. I hope you look carefully at the member benefits he is outlining

in his message. Any of these benefits, coupled with the value of networking that AWCI affords its members, make the value of membership easily worth the price of the dues. As just one example, members are now covered under a free accidental death and dismemberment policy in the amount of \$2,000. There are additional health benefits for members covering eye care, prescriptions, and hearing plans also free of charge. Check them out on page 32 of this issue. I honestly feel that, if a person cannot find a member benefit, idea, product source, bench tip or something to add up to a savings of several hundred dollars in a year, one is not really paying attention.

As I am writing this message we are now deep into the holiday season which offers a time of hope and encouragement. As it turns out in our trade, the commercial side of the season is a time of hope, as well. The day after Thanksgiving is "Black Friday," a term comes from the accounting profession. Traditionally, the day after Thanksgiving is the start of the holiday shopping period, although it has been steadily moving forward and Christmas decorations manage to show up in stores the day after Halloween. Black Friday is the day in which the red ink of losses for the year is replaced by the black ink of profits by the end of the day. It may take longer than Friday, but the point is made. Many retail shops do 50% of the year's business during the holiday season. Fortunately for those of us in the repair business, we are not quite so dependent on the holiday trade, but it is still very important. In my interactions with our customers this year it appears the level of repair work has significantly turned up. It appears to be widespread geographically. I think this is very encouraging. We needed this upturn badly, and I know many of us had started to become discouraged. Plenty of the clock repair folks, at least, are telling me they are once again "buried in work." We go in economic cycles and sometimes it seems to be feast or famine. The lean times have really made us appreciate the busy ones that are coming back.

I have received numerous positive comments on our

new color *HT* magazine and its content. It seems to me it is improving each month, and as I look back, I am impressed by the changes made. To the staff, the writers, and everyone involved, I give my personal thanks. Our Treasurer, Henry Kessler, has also been very helpful behind the scenes in getting these changes made. It is somewhat unfair to single anything or anyone out, but I'll mention a couple of things that struck me personally in recent *HT*'s.

For example, this month's focus is on Environmental, Health and Safety issues in our industry. The variety of articles you'll find on this topic point out recent advancement in the industry and include good advice to help us keep current on many vital subjects.

In the October issue Mike Gainey put a lot of work into his article on our 50th annual meeting. At the convention he photographed and interviewed people and did a great job getting his "diary" into words. This recap brings back a lot of good memories. I hope you also view the remainder of his work on the web on the AWCI website at www.awci.com

The October *HT* article by Jack Kurdzionak entitled *Profitable Watch and Clock Repair* is a must-read for anyone who is self-employed or owns a shop. We need to be reminded that, as professionals, our business consists of two halves: Half is our technical skills and the other half is our business skills. Both halves must be proficient for us to survive and prosper. It is critical that we "work smarter, not harder."

The technical articles in *HT* are also valuable, and the one by Jonathan Edwards regarding the 19¢ repair on the Elma watch cleaning machine that can save \$1900 certainly caught my eye. That savings would pay membership dues for a long time.

There is a wealth to be learned from simply reading the advertising in the *HT*, as well. In talking with people I am shocked at the lack of knowledge. Many don't know what is available on the market or where to ask to find something. As an example, there are quite a few clock repair people who are not even aware there are clock timers on the market or how these clock timers work. (As a disclosure, we do not sell them.)

I leave you with one final thought—I want to personally wish you *Health, Wealth, and Happiness* in the New Year.

a message from the executive director

BY JAMES E. LUBIC, CMW21



I hope everyone had a wonderful Christmas and Holiday Season. Now it's time to get to work on those new years resolutions. If you had trouble coming up with any resolutions for this year, I would like to help you with some ideas.

1. If you don't do so throughout the year, you should

look at your pricing structure for repairs. Make a resolution to monitor what your turn-down rate is on various repairs that you quote to customers. Many of you may know this already, but for those of you that don't, a good rule of thumb when monitoring your turn-down rate on repairs is 20/80. You want to set your prices so that no more than 20%, or 2 in 10 customers walk out your door without leaving the repair because the price you quoted is too high, in their opinion. I know watchmakers and clockmakers want to be heroes and repair everything that walks through the door, even though we all know better. Don't be a hero—be a smart business person. Don't be afraid to set your own supply and demand line. If your backlog is too long using the 20/80 approach, jump it up to 30/70. You might be surprised at the positive results.

2. Next, take some time to clean up your shop and get organized. Trade in those shoe boxes for proper cabinets. You will feel much better about yourself and your business. Don't be shy about projecting a professional image through your appearance. Invest in one new piece of equipment for your business. It could be a computer, computer upgrade, software or test equipment. Stay current with technology. Someday you will want to retire and a clean, organized and up-to-date business can easily be sold to supplement your retirement. A dirty, disorganized, outdated business usually ends up closing and the contents selling for pennies on the dollar, and that just isn't right when you've worked so hard for all those years.

3. Reward yourself and take a vacation this summer. How about August 4th through 7th to Denver, Colorado for the AWCI Annual Convention and Educational Symposium. We are now busy putting together another fantastic Convention for AWCI. Soon, we will have all the details here in the *HT*.

4. Another goal should be to get certified! Hopefully, you have already registered to do so. The Twenty-First Century Certified Watchmakers (CW21) exam

has become the industry standard. We are beginning the process of up-dating our marketing materials and website. In doing so we are not only targeting other watchmakers and clockmakers, but also the consumer. I encourage you to add certification to your *to do* list for 2011 to improve your business practices. Please see the certification exam schedule on page 31, or on the web at www.awci.com.

The Twenty-First Century Certified Clockmaker (CC21) exam is also available. You can read the clockmakers Standard and Practices at www.awci.com. There you will learn what is required and how the exam is administered. If you have any questions about Clockmaker certification please e-mail me at: jlubic@awci.com, or call me toll-free at 866-FOR-AWCI (866-367-2924), extension 310.

Go to www.awci.com for more information on these and other cost-saving benefits offered only to AWCI members. Almost every member I have talked with who has taken the time to look into these benefits has been able to save money. You owe it to yourself to take advantage of these benefits.

Also, please remember to thank our *HT* advertisers when doing business with them, as we AWCI members appreciate their support. Boy are you ever going to be busy this year! Oh, and don't forget that annual physical. *Here's wishing you a Happy, Healthy, and Prosperous New Year!*

A NEW BENEFIT! Discounted FedEx Shipping

AWCI is excited to announce a new member benefit. Starting in February, 2011, you can save on shipping costs with the AWCI Freight Savings Plan.

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- 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 other association members save thousands of dollars.

Pre-register today at www.siriani.com/awcifsp or call 800-554-0005.

BY JACK KURDZIONAK, CW21



WORKSHOP SAFETY CHECKLIST

Is watchmaking a hazardous occupation? Not at all when compared to coal mining or working on a skyscraper. It can be hazardous, however, when one ignores common

sense safety rules and takes unnecessary risks in the workshop. Let's examine some common workshop hazards and some ways to mitigate these hazards that include fire, eye injury, electrical shock, chemical inhalation, chemical contact, poisoning, falling, and improper tool use.

A. Workshop Fires:

1. Do you have fire extinguishers readily available to put out any small workplace fire? Obtain the correct type of fire extinguishers for the potential hazards in your workplace. Have them ready for use, and be sure to train all employees in their operation and make certain employees are aware of their location.
2. Do you have the phone number of your local fire department at every telephone? Put an emergency card near every phone with all emergency numbers listed in large print easily readable by unaided vision.
3. Do you have prominently posted exit signs at every door?
4. Do you have an emergency exit plan for all employees? Formulate an exit plan and have frequent reviews of the plan, along with a regular fire drill. Also, have a designated safe gathering place away from the premises so you can account for the safe exit of all employees.
5. Are all of your exits operable? In 1942, Boston's Coconut Grove fire killed 492 people in less than 15 minutes. Many exit doors in that night club were locked shut to prevent unauthorized entrance. They worked so well that hundreds were killed due to those locked doors. No one could get in or get out. Make certain all doors provide a safe emergency exit.



6. How do you store flammable chemicals? Many solvents, as well as watch cleaning and rinsing fluids are flammable. Although they may be safe to use at room temperatures, they can be an explosive contributor to a small fire. In seconds, a small controllable fire can become a conflagration if it ignites flammable liquids. Flammable liquids need to be stored in a UL approved, fire-resistant steel safety cabinet.

B. Injuries Caused by Chemicals or Foreign Bodies in the Eye:

1. Most eye injuries are preventable when proper eye protection is used. Safety goggles or glasses are required whenever there is any risk of eye injury present.
2. Don't perform buffing, grinding, drilling, etc., without eye protection.
3. Do not handle chemicals without eye protection.

C. Electric shocks caused by unsafe wiring, improperly grounded equipment, or unsafe or illegal wiring in the shop:

1. 110-volt AC current is safe to use when handled properly. Use it improperly, and it can be deadly.
2. Use only grounded outlets. Ground all appliances to prevent electrical shock.
3. Extension cords are dangerous. They can cause electrical shock or start an electrical fire. If you need more power in your shop, call a licensed electrician and have more circuits and outlets installed.
4. Replace all frayed wiring. Electrical tape is not a substitute for new wire.
5. If in doubt about the safety of your existing wiring, have your shop inspected by a licensed electrician and implement any needed electrical upgrades.

D. Avoid injury caused by inhaling dangerous volatile chemicals:

The carbon tetrachloride and benzene we once used were wonderful solvents that dissolved grease and oil and evaporated rapidly. Both were also serious poisons, and in addition, benzene vapors were explosive. Fortunately, both are now banned solvents.

1. Currently, watchmakers use solvents that are less dangerous but might still present health and flammability issues when improperly used.

Familiarize yourself with the MSDS (Material Safety Data Sheet) for each solvent. Provide adequate ventilation as required for any potential inhalation hazards.

2. Take all necessary precautions when handling flammable chemicals.

E. Contact injuries—prevent skin contact with hazardous chemicals and solvents:

1. Cleaning solutions are great oil solvents. That is a desirable property for a cleaner. They also remove oils from human skin, which is not desirable. Use care when handling solvents.
2. Keep your hands out of cleaning solutions. Use tongs and baskets to dip items into the cleaning tank. Your hands will appreciate that extra care.
3. Other shop chemicals used to remove rust can be corrosive. Handle with care and avoid skin contact.

F. Poisoning caused by ingestion of a poisonous chemical:

Watchmakers at one time actually used deadly cyanide to brighten the finish on watch movements. Yes, that's the same chemical used by some states as a means of capital punishment in a gas chamber. Although watchmakers no longer use cyanide, we still need to be aware of other potential poisoning hazards.

1. Many chemicals and solvents found in the watchmaker's shop are poisonous and may cause serious illness or death. Do you have these items all properly labeled so that, in case of accidental ingestion, you may take immediate remedial action? Label all potential poisons and hazardous chemicals. Be sure to have the MSDS readily available in case of ingestion or exposure to any chemical danger.
2. Understand a manufacturer's claims. If a given chemical is safe there is also sometimes a disclaimer such as, "Product is safe when used as directed." Find out what "safe" means and learn to use all chemicals properly.

G. Injuries caused by tripping or falling down:

1. Do you permit anyone, including yourself, to leave tools, boxes, bags, handbags, etc., on the shop floor? Items left where someone may walk are potential tripping hazards. Provide appropriate storage areas for employees to stow any shop items, as well as personal items.

A simple rule of thumb is, if an item has no legs or feet, it does not belong on the floor at anytime.

2. Do you or any of your employees ever use a chair or stool to stand upon while reaching for something? Some people may even stand on a chair that has wheels. Use a chair instead of a ladder, and you are inviting injury. Provide quality ladders and/or stepstools appropriate for any shop task that requires extended reaching. (Stools and chairs are designed for sitting, not standing.) Have the right equipment available to safely access out of reach items. It is truly low-cost insurance.
3. Carpets on the floor may look pretty, but any carpet, improperly installed or maintained, may cause a severe fall. Make certain no carpet is wrinkled, badly worn, or liable to slip across the floor. Who needs a broken wrist because of a slip or trip on a carpet?
4. Do not use stairs as storage shelves. Only feet should be on stair treads. Items left on stairs invite serious accidental falls.

H. Injuries caused by improper use of tools or equipment:

1. Use the proper tool for the job at hand. Each shop tool has a specific use or uses—do not use a knife when the job calls for scissors or a box cutter.
2. Dull cutting tools cause serious injuries. There is much truth in the old saying that a dull knife is far more dangerous than a sharp one. Keep all tools in good condition and repair or replace tools as needed.

Make your workplace a safe place for all. Prevention is inexpensive. A serious accident can put you out of business or worse. Let's keep our watchmaking profession as it should be—one of this country's safest. ♦

Safety Checklist

Do You Have?

1. A well-stocked first aid kit.
2. A fully-charged fire extinguisher.
3. Fire-resistant cabinets to store flammable chemicals.
4. A well-ventilated shop.
5. Ladders and stepstools.
6. MSDS for all chemicals used in the shop.
7. A fire emergency plan.
8. All exits clearly marked.
9. Eye protection available for all employees.
10. A regular review of safety procedures and policies.

To Your Health: Sitting in Motion



Your Environment
Health & Safety

BY JOHN W. SAFRANEK, MS

Sitting at the work bench just got a whole lot more healthy and FUN!

Just as technologies evolve in watchmaking and after-sales service techniques, so too does the technology associated with human kinetics as it pertains to what you and I do for the majority of our professional day. As the astute reader of the *Horological Times* knows, we have visited the topic of good posture at the bench before, only the focus was on a kneeling-type of chair.

During my last trip to Switzerland I was surprised to find a very curious-looking chair/stool, with what looked like the shock/strut mechanism from an automobile as its sole support pillar. I made this discovery not in a watchmaker's "atelier," but in the reception area of a spa. This relatively new mode of sitting is called the Swopper®, and has been made famous in Germany, where it was developed by award-winning German industrial designer Henner Jahns. The product is also made in Germany and is one of the "chairs" of choice for many school-age children there. It seems researchers have determined that "active sitting" is the key not only to proper posture, but also to effective concentration, plus a host of other benefits. Contrary to "old-school" (pun intended) wisdom, kids in class should NOT sit still. That's right. Sitting still for prolonged periods is not

only very, very bad for your posture (even if "sitting straight" and still), but is also counterproductive as concerns the reason for being in class . . . learning how to learn. When learning, one's mind should be actively engaged. Now here's the corollary: "An ac-

tive body promotes an active mind." How many of you would argue with that?

Swopper promotes its product as having the capacity to "relieve back pain." After utilizing mine for the past thirty days, I can attest to this fact, as I currently suffer from mild but chronic mid-back pain. The product is endorsed by Stephen H. Hochschuler, M.D., Orthopedic Surgeon and Chairman of the Texas Back Institute of Chiropractors. Swopper claims that the user retains his or her ability to **move within all planes of motion**, which enhances the proper physiology of spinal joints and muscles. In addition to improving posture and relieving back pain, primary health benefits also include:

- Improves breathing through proprioception (the perception of movement and spatial orientation from stimuli within the body itself)
- Strengthens and conditions muscles of the back and abdomen
- Improves nourishment to the inter-vertebral discs
- Improves circulation to the lower extremities
- Assists lymphatic flow
- Keeps hip, knee and ankle joints flexible, inhibiting the development and/or aggravation of arthrosis (degenerative joint disease)
- Allows flexibility to reach things without getting up out of your chair



only very, very bad for your posture (even if "sitting straight" and still), but is also counterproductive as concerns the reason for being in class . . . learning how to learn. When learning, one's mind should be actively engaged. Now here's the corollary: "An ac-

The author's orange Swopper in front of a modern, Mowa German watchmaker's bench. Note the seat cover used in the special edition Swopper is constructed from ALCANTARA® Ultra-suede® which is an extremely abrasion-resistant fabric that passes a 140,000 double-rubs per square inch test and carries a 10-year warranty when the chair is used in a single-user office environment.



To Your Health: Sitting in Motion

BY JOHN W. SAFRANEK, MS

And what, might you ask, is proprioception? When I was a kinesiology professor I instructed courses on athletic training. Proprioception was a key concept for my students to fully grasp as they were training to help athletes not only remain uninjured, but also protect the athlete's ability to not re-injure themselves. Proprioceptive input gives the body information about joint position, motion and any vibration that we may be feeling. And that, my fellow watchmakers, is exactly what the Swopper achieves.

I am such a firm believer in this concept that, after first trying a Swopper, I immediately became aware of its inherent, long-term benefits. My affinity was so strong that I purchased two of the special edition models from CMS Inc., the first USA distributor of the Swopper (www.sittinginmotion.net), one in blue and one in orange. CMS Inc. owner and President, Jay Schultheiss, was more than happy to answer all of my questions, and to discuss with me my initial concerns of being able to successfully utilize the chair in my workshop.

Both new chairs were put into service in my clean room, one at the bench and the other at a multi-work station, where I sit to pull and inspect parts, perform pressure testing and/or compose on the keyboard. Previously, I had been using a "kneeling chair" at my primary assembly bench, because it provided dramatic relieve to lower back pain. However, due to the kneeling chair's ergonomics, getting out of the chair is cumbersome, and a trip and fall hazard is often possible when rotating right or left to exit a modern watchmaker's bench, such as the Mawo. With the Swopper, there is no exit issue as it smoothly rotates 360 degrees. The top of the Swopper also has the ability to pivot, and this pivot action is adjustable, as is its height and the strength of the primary support column's resistances. These settings must be adjusted to the user's individualized posture and movement requirements.



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To Your Health: Sitting in Motion



Your Environment
Health & Safety

BY JOHN W. SAFRANEK, MS

The tension adjustment for the shock/strut, which allows the user to fine tune the up-and-down flexion of the post to his or her individual preferences, and is initially set based on the weight of the user.



Using the Swopper requires acclimation. It is active sitting, and as such will demand that muscles which previously were uninvolved in traditional sitting become accustomed to the new demands placed on them. Because the Swopper is so responsive to up-and-down and side-to-side motion, you will find yourself wanting to move, if you desire to move. At first I was a bit concerned as unwanted movement at the bench is a big no-no. However, the responses of the Swopper are intuitive. Due primarily to very sound construction of the chair, and its proprioceptive abilities, it is actually an aid and not a hindrance to proper posture at the bench. Neither is it a detraction from techniques and/or procedures that require absolute concentration and stability. If you must sit still for a procedure, it is right there underneath you.



The bottom of the chair presents the user with a pivot range adjustment to allow control of the degree of flex of the post on its base. This adjustment allows the user to increase the degree of flex as he or she becomes more accustomed to the lateral trunk muscles desire for work, and the degree of side reach the user may wish to accommodate in his or her work environment.

But something else is going on, and that is, your body is now ALSO right there underneath you, actively working to keep you still. As I said, this new feeling takes some getting used to, but this new feeling is the pay-off for using the chair, because it's your body's muscles, tendons and ligaments (mus-

culoskeletal components) working to help you maintain proper posture, as they should. The manufacturer suggests transitioning to the chair at first, for no more than 30-minute sessions, and this is the advice I followed when beginning to re-learn how to properly sit. The bottom line for me is that sitting is now a form of exercise in my workshop, not to mention that it is now fun to "sit in motion."

The height adjustment lever is well constructed and within easy reach. The bottom of the seat also demonstrates the product manufacturing information, country of origin and various quality control testing verifications.



Of course, to achieve a valid therapeutic benefit with any new device you will have to view it holistically, meaning that you will have to incorporate the proper use of the new chair with commensurate changes to your diet, an increase in aerobic forms of exercise such as walking and/or swimming, and a reduction of stressors in your work and home environments. If you suffer from back pain, a physician should be consulted as the advertised opinions of the any device may not have been formally evaluated or accepted by credible health organizations. ♦

Specifications of this model include seat width of 16 inches (40 cm), base width of 21.5 inches (55 cm), chair height range from 22.5 to 27.5 inches (57.15-69.85 cm), load capacity range from 110 to 290 lbs (50-130 kg) and a weight of 23 lbs (11 kg). The Swopper has also passed a series of independent tests by the TÜV Rheinland.



John W. Safranek is a full time watchmaker and a former member of the AWCI Board of Directors. He currently serves on AWCI's Education and Ethics committees, and is editor-in-chief of The Chronometer Club's *Communicator*. The author maintains his copyright for the purposes of reproducibility of his work.

How Will the Move to 0% Mercury Batteries Affect Our Industry?

WHY IS THERE A PROBLEM?

Watch batteries have come a long way since their introduction in 1957 for use in the first battery-powered watch, the Hamilton Electric. Today, batteries have become small, sleek and performance driven. The first carbon-zinc and mercury watch batteries had slightly over a year of life span, while today, silver oxide types can average three years and lithium can last up to seven years. Additionally, there are up to 143 different types of high drain, low drain and multi-drain button-cell batteries, according to AWCI's Battery Number System book by Ewell Hartman.*

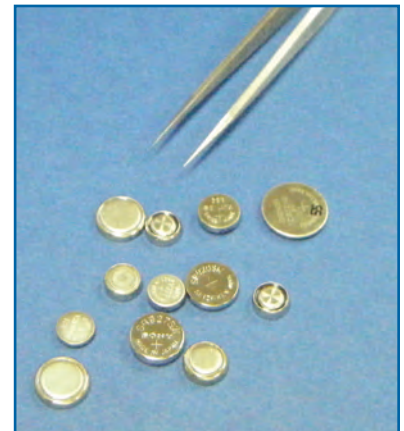
The performance is great. There's a wide selection. So what's the problem? The problem is heavy metals, specifically the mercury used in the manufacturing of button-cell silver oxide, zinc air and alkaline batteries (lithium batteries do not contain mercury). During manufacturing, mercury is added to the anode material to suppress zinc corrosion and prevent the build-up of hydrogen gas. Even though the amount of mercury in button-cell watch batteries averages only about 2-7mg, over the years it has had an accumulative effect on the environment. After decades of improper disposal of all types of batteries (and a variety of other products), traces of heavy metals have begun to appear in streams, ground water, the food supply and municipal waste, raising major health concerns. Starting in the 1990s, the battery industry began to eliminate mercury from standardized alkaline and carbon zinc batteries. The technology was simply not available at the time to do the same for the smaller button-cell batteries.

WHAT CHANGES ARE COMING?

During this same period, governments across the globe began to enact legislation restricting the use of heavy metals. European countries were among the first to restrict some sales of batteries with mercury in the early 1990s. In the U.S., New Jersey was the first state to enact legislation regulating mercury in batteries in 1992, followed by congressional action in 1996 with the passage of the Mercury-Containing and Rechargeable Battery Management Act. This legislation was designed to reduce the use of mercury and provide an impetus for recycling and proper battery disposal. Recently, the states of Connecticut, Rhode Island and Maine have enacted laws further restricting or entirely banning the sale and distribu-

tion of button-cell batteries containing mercury by July 1, 2011. The State of Louisiana is soon to follow, and over 30 other states are now considering some type of limitation on products produced with mercury. Additionally WalMart®, the world's largest retailer, demanded that their suppliers use only mercury-free batteries in the watches it sells and services.

The major battery manufacturers have been reinventing their manufacturing methods and product lines to accommodate the move to mercury-free products. In 2005 Sony introduced the world's first 0% mercury silver oxide button-cell battery. In 2008, Seiko's Sii division followed suit and began to produce some mercury-free silver oxide batteries for use in their watch lines. Maxell, Rayovac, Varta, Energizer and Renata, the main power source for the Swiss watch industry, have also released new 0% mercury silver oxide button-cell batteries. You should note, the battery industry is reluctant to make "mercury-free" claims because mercury can always show up in some very tiny percentage naturally. Instead, the industry uses the term "0% mercury."



According to Henry Kessler, president of Sy Kessler Sales, Inc., the North American Headquarters for Renata batteries, Renata is in the final stages of their transition to 0% mercury batteries. ETA and Ronda quartz watch movements are all now equipped with 0% mercury batteries as original equipment. All Swatch brands and Swatch service centers worldwide have been instructed to fully transition to the new 0% mercury batteries. The transition process is well underway for all of the big watch brands and national retail chains. For the watch battery replacement market, Renata is the only battery company currently making available a full line of 0% mercury high and low-drain silver oxide batteries. Mr. Kessler points out there were concerns that some of the earlier mercury-free batteries often yielded reduced performance and longevity, which slowed acceptance of the new 0% mercury batteries. OEM customers, apprehensive about the very long

How Will the Move to 0% Mercury Batteries Affect Our Industry?



Your Environment
Health & Safety

timeline between movement production and retail sale, pushed hard for an even longer battery life. The Swatch Group, parent of Renata batteries, also refused to accept any quality or performance compromise. To accomplish its performance goals, Renata totally overhauled its manufacturing process using the latest advancements and technologies, while adding additional production and quality control steps. According to Kessler, "Renata improved performance compared to several of the old-generation types, and absolutely perfected leakproofness in the process."

The battery industry's move to more green manufacturing technologies will help keep tons of heavy metal out of the environment. According to IMERC (Interstate Mercury Education and Reduction Clearinghouse), the total mercury sold in button-cell batteries in the U.S. in 2007 was 2.1 tons. (These are the latest published statistics reflecting only those companies reporting to IMERC; the actual amount is probably higher.) It's definitely a benefit to all of us if we can help prevent this heavy metal from entering our landfills and ground water.

WHAT DOES ALL THIS MEAN TO YOU?

How will these changes affect watch and clock retailers and repair providers, especially those who operate in these states? By this summer you must switch totally to mercury-free batteries if you do any kind of direct, indirect or internet commerce in these states. This applies to both new products and those in your existing stock. According to Renata, "In addition to those companies that will always favor a more environmentally favorable solution, it is anticipated that additional states, as well as markets around the world, will quickly move toward the 0% mercury batteries." Watchmakers and clockmakers across the U.S. need to be prepared for the eventual total changeover to mercury-free products.

There is another consideration that, initially, the product may cost a little more. For example, Renata increased battery prices by 7% due to the additional steps required in manufacturing. Additionally, if you're thinking about selling your old stock, you won't even be able to sell it on Ebay in those states enacting new laws after July 1, 2011. Essentially, you'll need to begin separating your inventory

by compliant and non-compliant batteries and begin working to deplete your non-compliant stock. Or, you can send it to an approved recycler. With the steady rise in silver costs that began in early 2009, recycling may not be such a bad alternative. At the end of November, 2010, silver was selling at over \$27 per ounce, which means your scrap batteries could be worth over \$25 per pound depending on the mix.

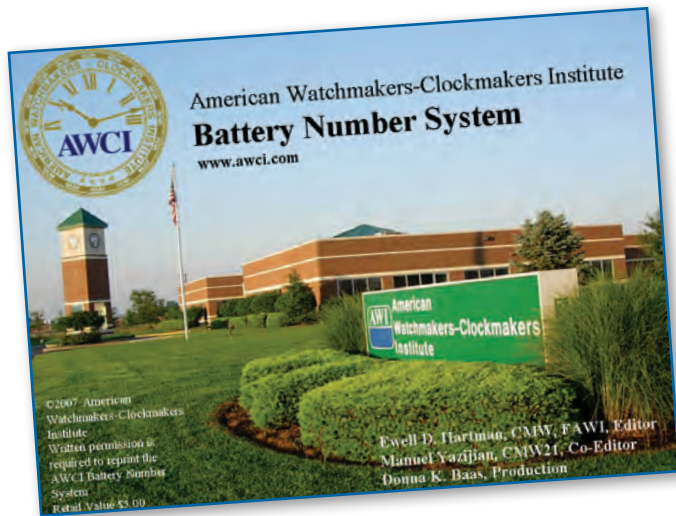
This industry has witnessed similar changes before. (Remember when mercuric oxide batteries were banned?) Our industry has always adjusted and moved forward, as it will now. The point is, we need to be aware of what's coming, to keep on top of the deadlines, and to work with trusted suppliers and resources during this market changeover.



*(Battery Number System book listing includes batteries that have been discontinued.)

Need A Complete Reference Guide For Watch Batteries?

BY EWELL HARTMAN



Battery Number System Book Available from AWCI

The AWCI *Battery Number System* was first conceived around 1980 when many different number systems were being used by the various battery manufacturers, and even by some watch companies.

The original intent of the AWCI system was simply to provide a common denominator number for each size, chemistry (voltage) and drain, regardless of the battery manufacturer or the watch brand.

The AWCI *Battery Number System* was subsequently expanded to include information on properly selecting replacements and gives conversions of any battery number to the system preferred by the installer (cross-references). It also contains individual battery specifications, guides to selecting a battery by dimensions and type of watch and gives possible substitutions when the desired battery is not available. It is the most comprehensive reference for watch batteries known to exist today.

The book is available directly from AWCI for \$7.50 retail or \$6.75 for members. Order from the online store at www.awci.com or contact AWCI at 866-367-2924. ♦

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PERSONAL OBSERVATIONS OF A RENATA FACTORY TOUR

BY TERRY KURDZIONAK

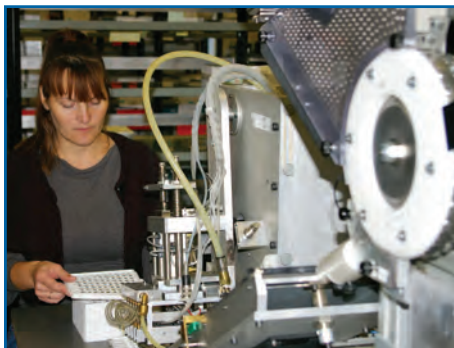
On a recent business trip to Switzerland, we were invited to visit the headquarters of Renata, SA in Itingen, Switzerland. Thank you to Henry Kessler, of Sy Kessler Sales, the North American headquarters of Renata batteries for facilitating our visit.

We arrived mid-afternoon on an unseasonably warm November day and we were greeted by Gisela Kaufmann who gave us a tour of the factory. Renata, SA produces several million batteries per year. We found the facility is clean, modern, highly automated, and staffed by long-term, experienced employees.

We watched silver oxide batteries being produced from start to finish. First, the battery-numbered anode 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 then added by high-precision dosing. The battery is then capped with the cathode side of the canister and “crimped” closed to seal it. Other steps along the way include washing, drying, date coding, and, of course, packaging. There are several steps during the process that addressed quality control.

The 3 Volt lithium cells are produced in a separate area of the factory. Raw lithium is a metal which is similar in consistency to pastry dough. Attendants work with it using their specially-gloved hands inserted into an oxygen-free chamber. The chamber cannot contain any element or compound, such as oxygen or humidity that will react with the lithium. As with the silver oxide cells, a membrane covers the lithium once it has been put into the anode canister before adding the electrolyte solution. The

cathode cap is then crimped on to seal the battery. Batteries are then washed, dried, dated, and packaged. You’ll note, once a lithium battery is discharged, the lithium is rendered inert.



The Renata 2 Volt lithium cells (44, 333, and 751) are no longer being produced. They were used in some quartz watches produced in the 1980s and the demand for them has dropped considerably. They had a high production cost, as well as a complex system of production. Short production runs were ended as market demand diminished. It is recommended that any remaining cells of this type on your shelves should be discarded.

We learned so much about the process. We also felt privileged to spend time with the chief technical officer, Eric Weber, and also spoke with C.E.O., Stefan Pfrommer. Both gentlemen were interested to hear about our experience with their products. ♦



A Note on Freshness Dating Changes:

When Renata fully launches its new 0% mercury product this summer, the date code markings will change to two-digits only. The first digit on the side of the cell will continue to indicate the year of production, while the second digit will represent the month (using O, Y and Z for October, November and December). Also, you can always send your spent silver oxide batteries to Renata for recycling.



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Environmental and Health Awareness Spurs Development of Safer Chemicals for Horology Industry



BY P. BILELLO, PRESIDENT, ZENITH SOLUTIONS, INC.



A Brief History of Cleaning Solutions

In the late 1800s watchmakers and clockmakers were desperate to have clean parts so they used cyanide solutions. These practices continued through the mid-20th century. For example, a book published in England in 1969 entitled *Practical Watch Repairing* noted, "The solution is made by dissolving a piece of cyanide about the size of a walnut in a cup of warm water. Once made, it should be kept in a glass jar with a secure stopper to prevent deadly fumes from escaping."

Around the same time period watchmakers and clockmakers were also using benzene as a cleaning solution. Most people know that cyanide is extremely poisonous, and we chemists can tell you that benzene is carcinogenic. Both products are now banned by the government and cannot be used in cleaning solutions. In its place some manufacturers of cleaning solutions decided to use ammonia in their cleaning products, primarily because watchmakers were of the opinion that ammonia was necessary in a cleaner to give metal parts that extra luster. Un-

fortunately, ammoniated cleaners give off ammonia fumes. There are a large number of watchmakers and clockmakers who are sensitive to chemical odors and find ammonia fumes objectionable. In fact, these are the same ammonia fumes that escape when tank cars are involved in an accident and spill ammonia into a surrounding area. In this case, an entire town is evacuated. In our case, the watchmaker who uses ammoniated cleaners stays in the same room where the cleaning process is taking place and inhales unhealthy ammonia fumes.

Watchmakers and clockmakers have asked this chemist if something can be done to eliminate the ammonia odor. The answer is, "Yes." Chemists are now developing cleaners that are ammoniated—without the ammonia fumes. This is possible because the ammonia group is attached to a chemical that will not allow it to evaporate. As a result, there are no ammonia fumes and the ammonia stays in the cleaning solution where it is needed to give delicate watch and clock metal parts the desired luster. These new cleaners are environmentally-friendly and safer for watchmakers and clockmakers to use.

Ask for Environmentally-Friendly Formulations

May I suggest, when placing orders for cleaning solutions with your distributors, tell them you want the new environmentally-friendly cleaners. You will be pleased at the progress the industry has made in producing products that are more safe and efficient.

Another product group where there is concern and scrutiny is hair spring cleaners. At the present time, most watchmakers are using a chlorinated solvent cleaner because it is fast drying and an excellent degreaser. The problem occurs when the solvent evaporates. It can affect the ozone layer and is known to be carcinogenic. Watchmakers want—and are demanding—an alternative product. Thanks to modern chemistry and the determination to solve this problem, chemists have developed a new hair spring cleaner that is as effective as the chlorinated-type cleaners. It is formulated to evaporate fast and exhibit exceptional degreasing properties. At the same time, it is non-carcinogenic and will not affect the atmosphere. Check with your distributor about the availability of this safe and environmentally-friendly hair spring cleaner.

Environmental and Health Awareness Spurs Development of Safer Chemicals for Horology Industry

BY P. BILELLO, PRESIDENT, ZENITH SOLUTIONS, INC.

We have evolved from using cleaning solutions that contain cyanide...to benzene...to ammoniated cleaners... to those that are ammoniated—without ammonia fumes. And hair spring cleaners have changed from those that contain chlorinated solvents to environmentally safe, non-carcinogenic products.



We are proud to say that, today, the horological community is doing its share in helping to protect the environment and individuals. We are developing products that will not contribute to the contamination of the atmosphere and are safer for watchmakers and clockmakers to use. ♦

Recent Watchmaker-Clockmaker Comments on New Cleaning Solutions:

1. Arthur, a watchmaker-clockmaker, called this chemist and said, "I am 89 years old and come from a generation of watch and clockmakers. My father was Number 168 as a Master Watchmaker with AWCI. I personally have used ammoniated cleaners since 1946. When I visited a fellow watchmaker and saw the results he got with your new cleaner and noticed it had no ammonia odor, I was amazed how clean the parts were."

2. While making a sales call at a major watch company's repair center, the Supervisor Master Watchmaker made a comment when we were in a room with four cleaning machines going on at the same time. He said, "We could not be in this room if we were using the 'old' ammoniated cleaners."

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Safe Chemical Storage and Disposal in the Repair Shop



BY JOHN W. SAFRANEK, M.S.

Not long after I became interested in watchmaking I was told about a horrific accident. It seems a watchmaker was utilizing a “spray cleaner” which was highly flammable. This particular individual had the habit of smoking at his bench and leaving his lit cigarette parked near where he happened to be working. You can imagine the results of this carelessness. First, one does not use “spray cleaners” in watch repair. Second, smoking should only occur outside of the shop area and well away from chemicals or flammable vapors. This is an extreme example, but the point is, when *improperly practiced*, watchmaking could be dangerous to your health. There are also environmental concerns. The key is to employ safe practices in the workplace.

Watchmaking and clockmaking requires us to use certain chemicals. With a few basic precautions and common sense, any risks can be greatly reduced and/or eliminated. This article will focus on three often overlooked aspects of working with chemicals that are commonly found in the after-sales service environments of independent watchmakers:

- A. Proper Storage of Chemicals
- B. Material Safety Data Sheets
- C. Environmentally-Safe Disposal

A. PROPER STORAGE OF CHEMICALS AND LIQUIDS

Some shops I have visited have chemicals such as ultrasonic cleaner and rinse, either stored carelessly and directly next to the cleaning machine, or better yet, in lower cabinets in the same room as the cleaning machine. While lower cabinet storage may be a suitable location in many instances, there is another alternative. The use of an OSHA-approved fire cabinet will greatly reduce the chance of a fire associated with the storage of these chemicals. I have visited two watchmaking facilities where I have seen such cabinets in use—ETA in Switzerland and Rolex in Dallas. Let’s take a closer look at what these cabinets are designed to do and some of the benefits of utilizing them in a smaller shop.

Improper storage and/or handling of flammable liquids is the leading cause of industrial fires. Proper storage can help eliminate loss to expensive equipment, property and buildings, and more importantly,

could help save the lives of you and your employees. Your state and/or local city ordinances may actually require you to store flammable and combustible liquids in OSHA-approved storage cabinets. Have you checked—are you in compliance?

Safety cabinets are required by OSHA to meet certain criteria. These standards include a limit on the capacity or amount stored and an ability to limit the internal temperature that is reached during a fire to no more than 325° F when subjected to a 10-minute fire test using the standard time-temperature curve as set forth in the Standard Methods of Fire Tests of Building Construction and Materials (NFPA 251-1969). In a fire test, all joints and seams (usually welded on these metal cabinets) have to remain tight, and the door must remain closed. Additionally, these cabinets must be conspicuously labeled with a “Flammable—Keep Fire Away” sign. The bottom, top, door and sides of the cabinets must be at least 18-gauge steel or sheet iron and double-walled with

An advertisement for "CLOCKS magazine". The title "CLOCKS" is in large, bold, black letters, with "magazine" in a smaller, lowercase font below it. Below the title is a small image of a book cover titled "A Beginner's Guide to Clock Repair" by Ian Beilby. The book cover shows various clock parts and tools. To the right of the book cover is a text block: "Based on our acclaimed series of articles for the horological newcomer, the BEGINNER'S GUIDE TO CLOCK REPAIR has now been published as a 64-page, A5, full-colour book. In clear and simple terms, it gives the reader a comprehensive understanding of how a striking clock works and how to repair one when it stops. A MUST for anyone learning to repair clocks for the first time, and a valuable addition to the library of even the veteran." Below this text is the price "ONLY \$11.95 plus \$3 postage and handling." and the website "Purchase at our website: www.clocks magazine.com".

a 1½" air space. The door must be secured with a three-point lock with the door sill raised at least 2" above the bottom of the cabinet.



A safety cabinet is normally a very well-made piece of shop furniture. This particular model from Eagle is designed to meet OSHA 29 CFR 1910.106 (e)(2)(ii)(b). These regulations specify limits on the quantities of various Class I, II & III liquids, and also fire resistance. (The MSDS binder can be seen just to the right of the cabinet.)

Additional regulations may take the form of the Uniform Fire Code 78.201, which can require the cabinet to have an operational self-closing door(s). Since these codes can be numerous and specific to your area, check with your local municipal Fire Marshall and/or Code Enforcement Officer. Some ordinances allow and/or require the cabinet to be ventilated, which is an option that provides a channel where the fumes of the cabinet can exit to the outside.

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The interior of a small Eagle safety cabinet which is the ideal size for most small watchmaking shops. This model features one removable shelf creating two levels. Stored inside are some of the chemicals and liquids typically found in modern watchmaking. Some of the watchmaking solvents used in our cleaning machines are flammable and should be stored accordingly.

B. MATERIAL SAFETY DATA SHEETS (MSDS)

MSDS documents are used by companies to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Your state, county and/or municipality will also likely mandate that you keep on file some form of chemical exposure plan, which will include the presence of MSDS sheets for every type of chemical under your control. MSDS documents should be in a clearly-

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Safe Chemical Storage and Disposal in the Repair Shop



**Your Environment
Health & Safety**

BY JOHN W. SAFRANEK, M.S.

marked folder near the cabinet where the chemicals and liquids are stored. Because ordinances, laws and requirements may vary widely, it is YOUR responsibility to check with the proper authorities in your area to determine the specific requirements you must meet, and/or to arrange for an initial inspection of your storage system(s).

MSDS documents for chemicals used in watchmaking may contain up to 16 sections:

1. Manufacturer Information (name, address and contact information)
2. Composition Information/Ingredients
3. Hazards Identification (including potential health effects)
4. First Aid Measures
5. Fire Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Control/Personal Protection
9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information
13. Disposal Considerations
14. Transportation Information
15. Regulatory Information
16. Other Information

Of particular importance to the watchmaker or clockmaker are the MSDS sections that pertain to health effects, personal protection, ecological and disposal considerations. MSDS sheets can be obtained from any manufacturer, either from the maker's website (if available) or by contacting the manufacturer and requesting the sheets be mailed or faxed. The manufacturer is legally obligated to supply you with this information, and more importantly, you are legally obligated, in most cases, to have the information on file and available, and to have read the information in an effort to integrate the chemical's presence in your shop into your exposure control plan.

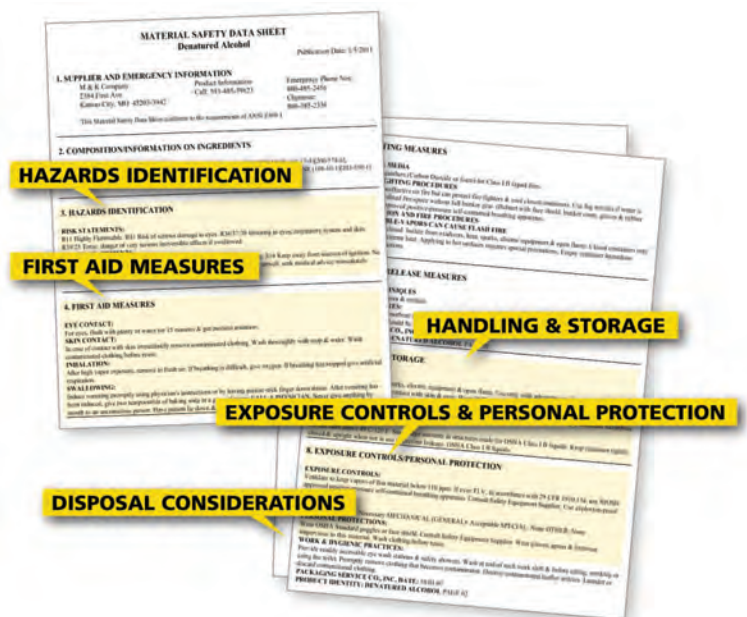
Chemicals that customarily require MSDS include:

- Hair spring cleaner
- Cleaning solutions
- Rinses
- Alcohol
- Hexane
- Acetone

These are available from your supplier or can be found online.



MSDS binder with all relevant MSDS sheets for cabinet and shop chemical contents. The MSDS binder should be labeled for quick reference. It is worth stressing that it is not enough to have this information. One must READ it in advance, and decide how best to integrate the information in the manual into the shop's exposure and disposal control plans—BEFORE an emergency or violation arises.



C. ENVIRONMENTALLY SAFE DISPOSAL

For most small watchmaking shops, safe environmental disposal begins with identifying a facility which will collect and properly dispose of a shop's old, residual and waste chemicals. If quantities are small enough, this may be done through a municipality's chemical disposal program, some of which are offered free of charge. Again, the watchmaker is directed to contact his or her local authorities to determine the proper procedure to follow, and the costs involved in safe disposal. This aspect of chemical handling cannot be over emphasized, as significant damage to the water and ecosystems of an area can result from ground-based or sewer-based discharge of the type of chemicals we typically utilize in our work. In addition, there are significant fines and

possible criminal prosecution which can result from improper disposal. Let's examine a few common examples of MSDS suggested disposal and environmental information.

(Example)

13. Disposal Considerations

This material is a flammable liquid and must be disposed in accordance with all local, state and federal regulations. IT CANNOT BE DISPOSED OF IN A SANITARY SEWER SYSTEM (etc.)

This means it is not okay to pour this particular chemical into the toilet, down the drain, or into the street. It must be disposed of properly, in accordance with state, county and/or local ordinances. This could involve your contacting someone from a chemical disposal company to safely remove the chemical. Again, you may be surprised to learn that your municipality has a recycling program, and if your quantities are small enough, there may be no charge to do this.

(Example)

12. Ecological Information

Ecotoxicity: Material is moderately toxic to aquatic organisms on an acute basis. (etc.)

For example, if you pour this particular material into the water shed and/or onto the ground to "evaporate" there is a chance it will have toxic effects on the animals inhabiting the streams and ponds in your area.

IN SUMMARY

Here's to making your shop a safer and healthier place to work for both people and the environment—we can all help through the use of a dedicated safety cabinet for chemicals, through the knowledge provided by MSDS documents, which is well-integrated into our shops' exposure control plan, and through a system of disposal which is safe for both our personnel and the fragile and limited environment we all must live in and share. ♦

Chemical storage fire cabinet requirements may vary by state and municipality. Be aware that proper storage and disposal of flammable or hazardous fluids may involve both unused and spent materials. MSDS requirement may vary widely so be sure to check your local and state requirements. Manufacturers are required to provide MSDS information; copies may also be found online. MSDS must be kept in alphabetical order and updated by date of release. You may also be required to organize MSDS by classes of chemicals. MSDS are not issued for assemblies or products that may contain chemicals or compounds. Some requirements may not apply to sole proprietorship businesses or those who qualify as "small quantity generators." It is your responsibility to seek updated MSDS, storage, disposal, record-keeping and other information and to integrate specific requirements into your operations.

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challenging situations, part 4 **the crown**

BY DALE LADUE, CMW21

The “Angelus Chronodato” featured in Part 3 of this series had a crown that was worn. I thought that I would be able to readily supply a new crown. However, I could not find a crown large enough in diameter with the proper tap size of the post. This watch is relatively large by vintage standards and commands the use of a large crown. How large? Realistically speaking, the crown diameter should not be larger than the height of the case or too small to grasp firmly. Between these parameters, a crown was needed that looked aesthetically proper, as well. I did find a proper size crown but the tap size of its post did not match the stem threads.

To solve this situation, I decided to mount the new crown in the lathe and bore out the inside including its post, as shown in Figure 1. I thought I could use the post from the original crown because I have done this numerous times in the past with excellent

results. The old crown was held in a collet by its post as shown in Figure 2. The worn knurl was turned off and the top was faced flat. The idea was to turn the diameter of the old crown down so that it would fit inside the bored out new crown. I turned down the diameter. However, I did not anticipate how thin the cap was and, while facing it flat, the crown and post separated (Figures 3 and 4). I was able to find a pocket watch crown that was too large but had a thread post that fit the stem (Figure 5).

The pocket watch crown was turned away leaving its post with a flange that fit snug in the bored out crown (Figure 6). The post and flange was then held in place under slight pressure as flux, soft solder and heat was applied. Grasped in tweezers and held over an alcohol lamp, the soft solder melted allowing the post to settle firmly in place (Figure 7). The new crown was installed and will now provide a firm grip (Figures 8 and 9). ♦



Figure 1. The new crown was bored out

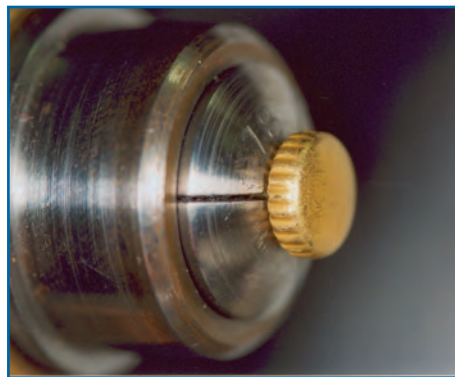


Figure 2. The old crown was held in the lathe



Figure 3. A view of the unusable old crown



Figure 4. The post separated from the crown as the crown was being faced flat



Figure 5. A pocket watch crown was found with the proper threaded post

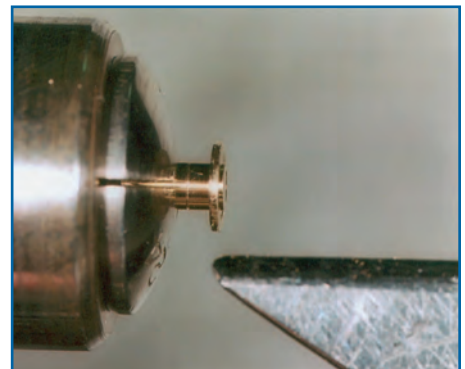


Figure 6. The pocket watch crown was turned away leaving the post and a flange that fit inside the new bored out crown

challenging situations, part 4 **the crown**

BY DALE LADUE, CMW21



Figure 7. The new post was soft soldered in place



Figure 8. The new crown installed



Figure 9. The "Angelus Chronodato"



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Finishing the Pallets

BY LAURIE PENMAN

The jig for grinding the swing angle of the pallets on the impulse faces and a first cut taken across the ends of the pallets was completed in last month's article. However, unless the pallets are adjustable (Vulliamy style) as shown in Figure 1, this is not sufficient. The grinding must be repeated until the required amount of lock is obtained. Another small jig is needed, a very simple but necessary one, because it will have the same center distance as the pivot holes in the movement plate. The holes in the plate are small (often between 0.040" and 0.060" diameter), too small to support the short posts that are needed to position the pallets and the escape wheel reliably.

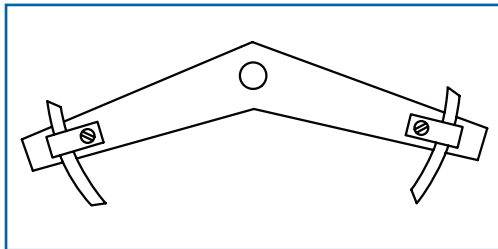


Figure 1: Vulliamy style pallets only need a minimum of grinding because the distance between faces is adjustable.

Figure 2 shows the jig; it has been drilled with two holes about 0.125" diameter at the required center distance. The movement plates should be drilled for the escape pallet arbor pivot at the same time as the hole in the jig, the other hole having been drilled first and located in the escape wheel pivot hole with a pin or rod that fits both. However, let me deal with the preparation of the wheel before looking at the completion of the jig and using it.



Figure 2: Jig drilled with 2 holes 0.125" diameter at required center distance.

It is a good idea to fit a collet or hub to the escape wheel before making its post. It will make a more stable support for the wheel and avoid having to make a large diameter post. The escape pallets are often fitted directly onto the arbor, but having a collet for that as well not only looks better but also is more likely to position the pallets squarely on their arbor.

The holes in the collets will need to be a close fit on the arbors. As long as new twist drills are used,

a close fitting hole can be obtained by using a slip stone to put a small chamfer at a negative angle (Figure 3) on the outside corner of the cutting face. The drill will produce a hole so close to the actual diameter of the drill bit that it might need opening slightly with a broach to slide on the respective arbors.

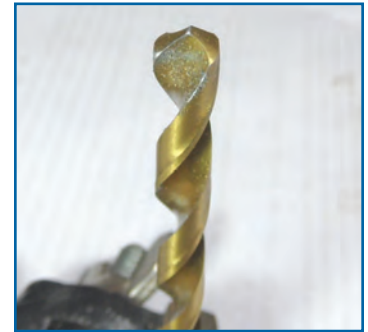


Figure 3: New twist drills form a close-fitting hole.

If the wheel and hub (to differentiate between the collet that supports the wheel and the collet in the lathe mandrel or spindle, I will use "hub" for the former) are to be placed on the arbor without the need for a machining operation between fixing the hub and mounting the wheel, all the diameters must be concentric and the hole in the wheel must be concentric with its outside diameter. Figure 4 is a machining sequence for making the hub. Note that it is assumed that a sharp, preferably unused drill is used for the drilling operation, ensuring that a hole is produced that is truly on the center line of the lathe.

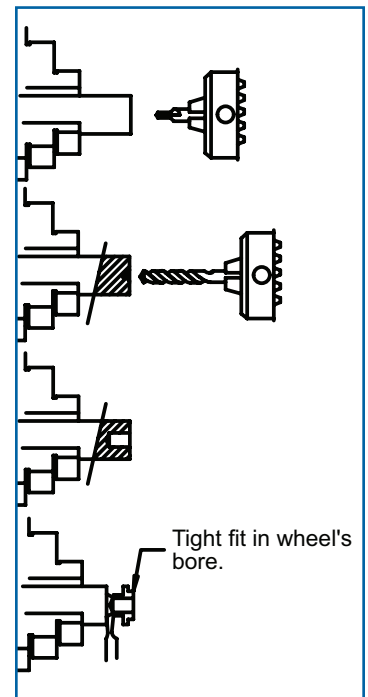


Figure 4: Machining sequence for hub.

All diameters are turned at one setting, and the one on the left of the final drawing is to suit the collet that will support the hub for mounting and fixing the wheel. This is a swaging operation. (Swaging is a form of riveting carried out by rubbing the protruding hub as it rotates until the displaced metal grips the wheel.) This is shown in Figure 5. The wheel should be secure enough that the headstock can be rotated by gripping the wheel in a piece of cloth. The finished product is a mounted wheel that is concentric to the hub and at right angles to its bore. A similar hub is made for the pallet body and fitted to it.

Finishing the Pallets

BY LAURIE PENMAN

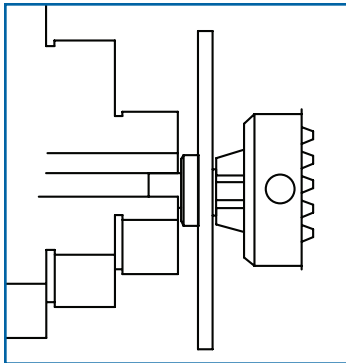


Figure 5: Swaging operation.

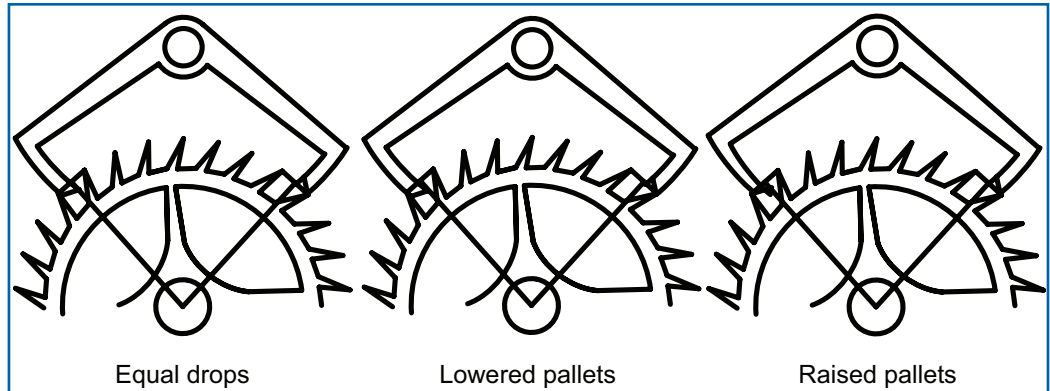


Figure 8: Three pallet wheel conditions.

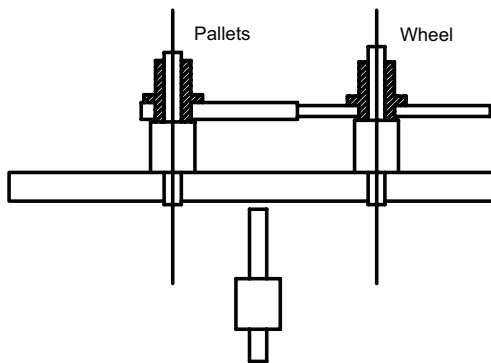


Figure 6: Typical form of posts As for the jig, the posts are turned with three diameters: one to make a rivet in the plate, one to form a shoulder and place the wheel and pallets level with each other, and one to fit the bore of the hub with a close fit that allows rotation but not wobble. Figure 5 shows an elevation of the jig and typical dimensions.

Figure 6 shows the actual wheel and pallets in place. There is still too much length to the pallets, which prevents them from lying on the same level as the wheel. It will be necessary to grind away the impulse faces using the grinding wheel on the lathe and the discs that define the angles of the impulse faces. This process must be performed carefully, because when at last the wheel and pallets can lie level with each other, the lock is nearly achieved. So for the last few grindings, only a few hundredths of a millimeter are taken off at a time. When the wheel can rotate through the

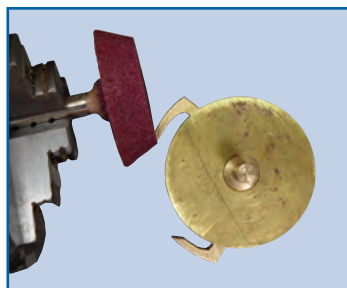


Figure 7: Subsequent grinding to reduce lock to proper size.

pallet impulse faces (by hand, of course) the job is very nearly finished. There are one or two more grindings to make to reduce the lock to the amount that is required (Figure 7).*

There is a point to make here. A slight error will result in uneven drops or different locks than what was wanted. The only way in which the pallets can then be made to give equal drops is to modify the center distance. Figure 8 shows the pallets and wheel in

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Finishing the Pallets

BY LAURIE PENMAN

three conditions: the first shows the pallets balanced between tooth tips, in the middle of tooth spaces, and with equal drops. This is not the usual way of showing the drop, because of course, when working, the drop is all on one side or the other (exit or entry). In the second drawing the pallet center is lower and the drops are uneven. In the third, the pallets have been raised and again the drops are uneven. If the pallets are for a precision clock, it is best to leave the drilling of the pallet pivot in the movement plates until the pallets are finished, and make the posts on the jig eccentric and capable of being twisted to alter the center distance. The pallets can then be moved inwards or outwards in relation to the escape wheel until the drops are equal. The lock is then obtained by grinding. This is exactly what happens in a movement that has Vulliamy pallets and adjustable center distance. The center distance is modified until the drops are equal and not touched again. Adjustment of the movable pallets to obtain the required lock has no effect on the drop.

The adjustment of centers, by raising or lowering the pallets, should only need to be done once for a given

pair of pallets. Many French round movements have pivot bushes that are eccentric, and have a means of twisting them so that the center distance is altered (Figure 9). This is a factory adjustment only. Unless the pallets are changed or damaged on their curved surfaces, these bushes should be left alone. A movement showing that a screwdriver or wrench

has been used, is one that tells a repairer the clock has been in the hands of an unskilled handyman, or has had its pallets replaced or modified. There is likely to be more work involved than the repairer might have expected. ♦

*Remember to protect your lathe bed and headstock from grinding materials.

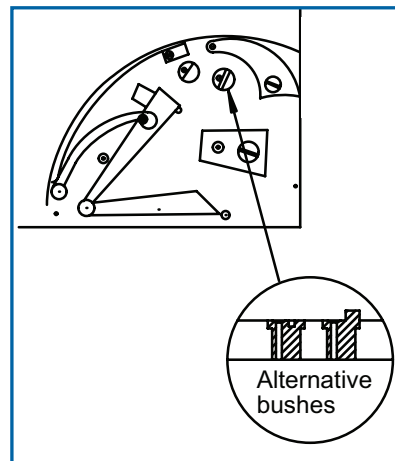


Figure 9: Eccentric pivot bushes.

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The New Educational Development Program (EDP)

BY JERRY FAIER, CMC21

Happy New Years to all of you and your families! Hopefully this year will provide some better opportunities to grow and prosper than the last one, and may you all celebrate family and friends with a strength and glow that lasts throughout the year.

This month I have the information on the long-awaited Educational Development Program (EDP) and the requirements for those who carry 21st Century Certifications. If you wish to see the entire document, go to www.awci.com, then CERTIFICATION and then to the EDP document. The following is a summary of the key points of this new program and an explanation of some options you may want to check out.

The EDP will be used instead of Continuing Education Units (CEU's) by AWCI because it is a good guide to the development and structuring of *all* educational programs for the future. There are now many choices for everyone, from enthusiasts to bench professionals at all levels who want to improve their bottom line. The EDP also covers those who are not now members, but who wish to become certified so they, too, can celebrate what AWCI is able to provide, which is: *Education and knowledge* for everyone interested in the horological world. The Institute assists us in our livelihood and sets standards for what the professional world expects from the hands of those who call horology their life career. I offer the following philosophy from the program to make this point clear: For any organization to develop, thrive and grow, the participation of its membership is critical. If members do not grow, then neither does the organization that represents them. *For the benefit of the total membership, and for the development and/or maintenance of a member's knowledge, skills and dispositions about the horological trades, this program was developed to set the guidelines for the educational programming of AWCI. The mission statement for AWCI sets the goals for the organization and its membership and sets the stage for this program.*

There was a science fiction program that said it the best: "Boldly go where no one has gone before!" Now AWCI proceeds with a direction, written standards and testing procedures that are industry recognized and can be accomplished by everyone willing and able to demonstrate the needed level of skill. This program is really all about growth and how that growth can help strengthen both our profession and the bench professional's bottom line. After all, if you don't succeed, neither can AWCI! On that sub-

ject, the entire Education Committee agreed unanimously. Why did we do this? In today's market with the ease of access by our clientele to the Internet, education is more powerful than ever. But the only way for AWCI and our certified members to show their clients and other professionals that they not only passed an assessment, but are hard at work to keep up their knowledge, is to re-issue updated certificates every 5 years. This indicates they are on top of their education and the products they service.

So what is this program all about? When you take an AWCI Bench Course you will have choices. (This option may be available in other curricula as well—always check first.) You may simply take the class. If you wish to have a letter of completion or acquire CEU credit, you must take and pass (with 70% or higher score = a rubric of 5) an assessment provided and scored by the instructor of the course. It's your choice. If tests are problematic for you and you don't care about a certificate, enjoy the class. If you need the credit, be prepared to work and earn your certificate.

Who needs credits? As of this writing, only watch-makers who carry the current 21st Century Certifications (CW21 and CMW21) will be required to obtain CEU's to keep up their credentials. (Keep reading the *HT* and watch for changes as this program continues to develop.)

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The New Educational Development Program (EDP)

BY JERRY FAIER, CMC21

In summary:

- CW21's must acquire at least 6 CEU's and those with CMW21's must acquire 7 CEU's. These CEU's must be obtained within 5 years from January 1, 2012 to December 31, 2017 for this first 5-year cycle.
- Regardless of how far back you obtained your 21st Century Certification, you will have until December 31, 2017 to acquire your CEU's. For those who want to *become certified*, you will have 5 years from the date on your certificate to acquire your needed CEU's. From there, CW21 and CMW21's will have 5 years from the date on their most recent certificate.
- A candidate may acquire more than these minimums, but they will be used to fulfill only one 5-year cycle. Extra CEU's cannot be carried over into the next cycle's requirements.

There are 3 types of educational programs that qualify for credit.

Type 1

This includes "hands on" classes where the students can get first-hand experience with the materials being presented. This includes:

- Bench courses
- Industry courses
- International classes
- Symposia courses (where the students get involved with materials)
- Academy courses
- Any type of hands on, involvement programs (a minimum of 6-8 hours of contact time with a qualified instructor is required)

For example, for each 6-8 hour day of class effort, one CEU will be awarded. If the course lasts 5 days, the candidate would qualify for 5 CEU's.

Type 2

These credits can come from:

- Seminars
- Distance learning programs
- Research work
- Book reviews
- Restoration "how to's"
- Tool development to solve a bench problem that is published in the *HT*, etc.

The key here is that the contact time is shorter, 4-6 hours, and this is more of a lecture situation where hands-on efforts may be difficult without a shop full of equipment. These can also be short courses that are offered at chapter meetings or conventions. For

each class or program completed with completed assessment, a ½ CEU will be awarded. If the program lasts, for 3 days, for example, up to 1½ CEU's can be awarded. Make sure you know the CEU value before you take a program.

Type 3

This deals with outreach to the community and special, non-listed programs. With prior approval you may receive credit for:

- Mentoring developing bench workers
- Making educational contributions to AWCI, either at the national level or at the chapter level to help our profession grow
- Speaking to groups interested in the horological trades, such as high school career fairs or to professional groups in order to educate an audience about our profession
- Taking professional self-improvement classes, such as CAD courses, bookkeeping or business courses

Here the CEU value is determined on a case-by-case basis only. At the end of the EDP program on the AWCI website there is a form you can complete and submit. Once reviewed, you will be informed on what you need to submit and how much CEU credit you can receive.



From these 3 types of programming we are requiring:

- CW21's are asked to acquire at least 3-5 CEU's from Type 1 and 2-3 CEU's from Type 2
- CMW21's are asked to acquire the same general number of CEU's, but to include at least 1-2 CEU's from Type 3

What's the reason for Type 3? It's to give back to the organization that has worked so hard for you, and whose membership needs the experience of those who have mastered more of the trade.

You can see we are not trying to overwork anyone and we want to reward people for their successful class work with CEU's. Our goal is to help you keep up your credentials, skill sets and income at the same time. If you study the program, you will see we built in many options. We know there is not just one way to do something, and this program gives you

The New Educational Development Program (EDP)

BY JERRY FAIER, CMC21

a lot of latitude. If you read the program carefully, there are guidelines that the Education Committee and the Board of Examiners (BOE) use to determine what gets credit and how much to reward. At the end of this report there is a short list of some known programs and the CEU credits offered. More are being developed as I write this, so keep an eye out for further offerings. Don't see the course you want? You can always design something and apply for CEU credit. (See www.awci.com for more details.)

There is one point to remember: CEU's do not carry over. If you earn 15 CEU's in one 5-year period you cannot carry over 9 or 8 CEU's (depending on your certification level) into the next 5-year requirement. The goal of this program is to help certified members constantly advance their education, and it is the hope of the Education Committee that, in the future, our certified members will develop and help AWCI offer more educational opportunities for the total membership. Remember, the key is the *educational growth of our entire organization and our profession!*

Even though we are not asking clockmakers (CC21 and CMC21) to formally take CEU's, since you are the industry, it is critical that you take a stance and give back to the trade. You have shown your skills, and now it's time to share them with others who are in the process of developing. Consider helping and growing our discipline. If you do not step out and work to display our craft, it will disappear with no one to blame but ourselves. Think about it! What can you do?

This covers the high spots of the program. I encourage you to take the time to read the entire program so you know where you fit in the spectrum of horological education. Remember: *Skills pay bills!* Our career has shown a remarkable tenacity to survive in rough economic times. Those who are skilled and can use their talents, knowledge, and dispositions to meet clients' demands will do fine, even when money is tight. If you can, *get certified* and let your clientele know about it. If you are already certified, *keep the public informed* of your skill growth and your special offerings which give you the unique ability to restore the product that means so much to them. It can only grow your bottom line!

The following are some examples of the types of classes and their CEU levels. Be sure to check out all the options online and remember, when you are in doubt, ask. We are all happy to help. ♦

AWCI

TYPE 1: 1 day = 1 CEU

- a. ETA bench course (A. Betti) 5 CEU's
- b. Vintage Chronograph course (Stoeber) 5 CEU's
- c. Modern Mechanical Chronographs (Schomaker) 5 CEU's
- d. Modern Automatic Watches (Schomaker) 5 CEU's
- e. Basic Quartz Watch Repair (Schomaker) 5 CEU's
- f. The Swiss Lever Escapement (Schomaker) 5 CEU's
- g. Staffing and Timing (Schomaker) 5 CEU's
- h. One-day bench courses 1 CEU
Two-day courses 2 CEU's
Three-day courses 3 CEU's (etc.)

TYPE 2: 1 day = ½ CEU

- a. Escapement or Timing course (Simone) 3 CEU's (more lecture)
- b. Short courses—at conventions, meetings, etc.
½ CEU for each day

Company Training Courses

(maximum 5 CEU's, depending on duration)

- a. Rolex
- b. Breitling
- c. Swatch
- d. Cartier

EUROPE

ETA (Grechen Switzerland)

- a. Quartz Basic 5 CEU's
- b. Mechanical Basic 5 CEU's
- c. Quartz Chronographs 5 CEU's

British Horological Institute

TYPE 1:

- a. Basic Quartz (Selley) 5 CEU's
- b. Chronographs (Murphy) 5 CEU's
- c. Basic Clock Repair Part 1 (Egan) 5 CEU's
- d. Basic Clock Repair Part 2 (Reynolds) 5 CEU's

TYPE 2:

- a. Platform Escapements (Shrouder) Parts 1-4, 1 CEU per part

BY DAVID CHRISTIANSON, CMW21, FAWI

QUESTION:

This clock was given to me by an uncle probably 20 years ago. It was brought to this country by my father's father, probably around 1880. The wooden clock case and the clock dial appear to be hand-made. The movement in the clock may well not be the original one. It is, however, unusual to me because it only has one hand. There is another train in the movement for the chime which sounds more like a bell. It probably chimes on the hour, but I'm not sure. To get the old thing running, one problem I have seen are the two "wheels" that the cotton cord runs on for the weights. They are not metal and do not look like wood. Do you have any idea what they could be? Anything else you might tell me about the clock would be much appreciated.

Burch Gustafson
White Bear Lake, MN

ANSWER:

Your clock was made with a hand-forged iron frame. The bell stand, wheel arbors, hammer, slotted count wheel, strip pallet and crutch appear to be hand-forged iron. The two barrels have wooden drums upon which the weight cord is wound.

Your clock movement is crudely made but is quite old. It can probably be dated in the early-to-mid-1700s, and has all the earmarks of a clock made in Sweden. This is not to say that all Swedish clocks are crudely made. There were many very fine clocks made in Stockholm for the very wealthy. But at the time, there was a growing demand for simpler clocks that would fit into farmhouses and the homes of tradesmen and merchants and at a price that even some humble cottagers could manage to afford. The country clockmaker supplied these inexpensive clocks.

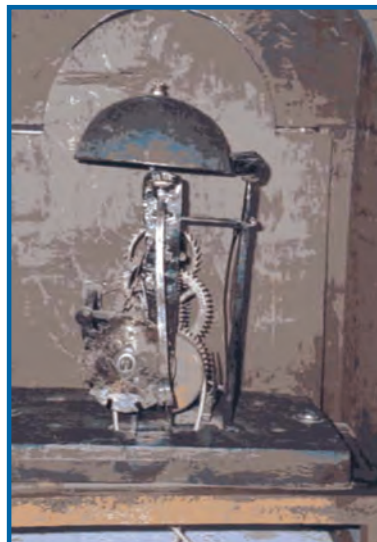
The most famous of the country clocks were made in the town of Mora. In and around that town a cottage industry developed that supplied the various components for the clockmaker. Most of the Mora clock movements were made in the English long case movement style from the latter 1700s through most of the 19th century.

Yours is made in a style that dates back to the first clocks of the 15th century and extending into the early 19th century, but without a posted-corner frame that most of these clock had. It is very reminiscent of the wooden-plate Black Forest (Germany) wagon-the-wall clock movements. Your clock probably pre-dates the Mora cottage industry. It was probably made entirely by the individual clockmaker, whoever he was. It was made with the time train planted in

front of the strike train; the two winding drums were probably driven by one cast iron weight on a continuous (end-less) rope with a small counter-weight to keep the tension on the rope. The single hand indicating the time harkens to the period when clocks were not very accurate time keepers.

Because of the movement style, single hand and workmanship, I'd say your clock movement was made in the early part of the 18th century by a country clockmaker who supplemented his usual farm income making clocks during the long Swedish winter months. Or, he could conceivably have been the local blacksmith. Blacksmiths were the original clockmakers before clockmaking was organized as a profession all its own. I agree with you, I do not think the case of your clock is the original.

As far as restoring your clock movement, I would find someone who is familiar with this kind of clock. The rather mediocre design and low over-all quality presents rather unique problems not encountered with the usual brass and steel clocks. The Swedish country clocks use a minimum amount of brass, which is formed from porous castings. Most of the movement is hand-wrought from low quality iron with quite a bit of slag inclusions. The low quality iron was more readily available than brass and much less expensive to acquire. The pendulum of your clock is suspended from a flimsy post and the strip pallet appears to span only a very few teeth. All-in-all, this type of clock movement will take a repairman with quite a bit of knowledge, skill, good fortune and specialized equipment to coax new life from this very old and very tenuous mechanism.



BY DAVID CHRISTIANSON, CMW21, FAWI

QUESTION:

David Sweigart asked us to look at his client's Longines wristwatch. His client thinks it is an early Longines military wrist watch and would like any information we can provide.

David Sweigart, CMW21
Angola IN

ANSWER:

On the Longines military watch question, Giampiero Negretti tells us in his introduction to John Goldberger's *Longines Watches* that the firm that would become Longines was founded by Auguste Agassiz in 1832. His nephew Ernest Francillon succeeded him in 1862 and four years later acquired Es Longines (sometimes referred to as Les Longines, either of which translates to "the fields of lengthened pastures") where he opened his own workshop. This seed would later grow into the Longines factory. The manufacturing methods he developed placed the company on the cutting edge with their mechanized production techniques. In 1867 he registered his own caliber. Katherine Pritchard (Swiss Timepiece Makers: 1775-1975) tells us that Longines was so successful it was plagued by imitators. In 1874 Longines registered its winged hour glass trademark and used it on all Longines dials to distinguish their watches from the fakes. It is, by the way, the first and the oldest Swiss watch trademark.

Longines had been trade marking their watches and marking the caliber number on their movements long before the advent of the wristwatch. Your watch is undoubtedly one of the numerous imitations of Longines watches. It is only marked "Longines" on the upper plate of the movement. There are no Longines trademarks on either the dial, movement or case. It does, however, have the trademark of Emile Blancpain of Villeret who was a blank movement maker. This watch carries a movement serial #40207 and is housed in a stainless steel case serial numbered 5607823. It is 15 ½ lignes in size with 16 jewels. It appears to be a very well-made imitation from around 1925.



QUESTION:

A customer brought this round plate French clock movement in for repair along with assorted bits. I don't have the case but it is obvious that the gravity escapement is tripped by the pendulum suspended above it.

Inscribed on back of movement is: Medaille D'OR, GLT BTE SCGT, PARIS

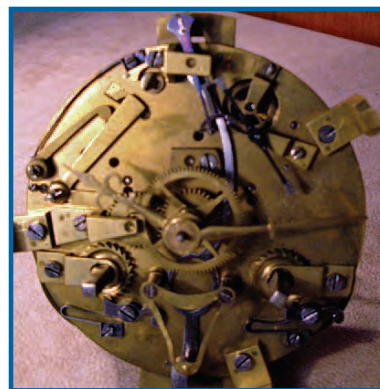
Also the number 3912 which is also inscribed on back of the minute and hour hands. The pendulum bob has a round beveled glass center which is inscribed Blebinhaus & Pitterlein Nurnberg.

Can anyone give me any background on this clock and what it might look like? I have been working on clocks since 1970 and have not seen this one.

Wendell Sharp, CMC
Yarmouth Port, MA

ANSWER:

Your clock is one of a group of French mystery clocks. The mystery in your clock lies in the fact that there is no obvious connection between the pendulum held in the hand of the statue and the movement in its base. Actually, the power is given to the pendulum through the base of the statue, which is rotated back and forth a few degrees by the movement. Careful observation of an operating clock like yours would show the ring upon which the statue sets rotates 1/40th of an inch either right or left with each impulse of the escapement. A full description of this movement can be found in the British Horological Institute's *Horological Journal* of August and September, 1948. I have ordered a copy of these two articles from the BHI and when they arrive I'll send them to you. Also the book, *Mystery, Novelty and Fantasy Clocks* by Derek Roberts (Schiffer Publishing, Ltd. in 2000) gives a good description of your clock.



questions & answers

BY DAVID CHRISTIANSON, CMW21, FAWI

QUESTION:

I have inherited a clock and have been unable to decide whether to auction it or not. May I ask you to pass my request to one of you experts who can tell me the provenance? Snapshots are enclosed.

Harold L. Rapp
Roslyn, New York

ANSWER:

Your clock is what's known as a "pendule de Paris" or "Paris clock." The movement of a Pendule de Paris is characterized by two circular plates with two going trains, one for the time and one for the strike. Most have a recoil anchor escapement and count the hours with a count-wheel (more typically) or a rack striking arrangement. The first Paris clocks were made ca. 1750 by several famous makers. By 1789 the production of rough movements for the Paris clock was started in Normandy in the little town of Saint-Nicolas d'Alhiermont (east of Paris). These movements were sent to Paris for finishing and casing. However, the production of this style of clock was certainly not limited to Paris, even though the fashion started there in the Royal Courts. In 1812 the firm of Japy began producing this style of rough movement in a much more powerful industrial manufacturing facility in Montbeliard in the French Jura Mountains near the Swiss border.

Clocks made before ca. 1840 had a very light pendulum mounted at the rear of the movement with a silk suspension. After 1840 several spring suspensions were used, the best known of which was the Brocot adjustable suspension. In this unit a heavier pendulum is hooked on a spring that could be adjusted via a rod extending through the front of the clock. Toward the end of the 19th century these movements were fitted into inexpensive cases of metal or marble. Your distinctly elegant clock shows a decidedly

Louis XIV (17th century) influence in its outside design; however, the movement appears to have been a product of an industrial system more than the one-of-a-kind product of the 17th and 18th centuries. Your clock has an adjustable suspension system designed by Achille Brocot with its heavy metal pendulum used in the Paris clocks after 1840. With this information I can date your pendule de Paris close to the latter half of the 19th century, but before they were set into cheaper cases at the end of that century.



Send your Questions to *Horological Times*
701 Enterprise Drive
Harrison, OH 45030
magazine@awci.com

AWCI new members

Arizona

Alberto Estrada-Phoenix, AZ

Arkansas

Greg Vick, CMW-Hot Springs, AR*

California

John Ho-Pasadena, CA
Apo Keylian-Aracadia, CA
Paul Loatman-Modesto, CA

Illinois

Gary Hodge-Wellington, IL

Minnesota

Mark Dietz-Thief River Falls, MN
Vivus W. Hurlburt, Jr.-Mahtomedi, MN
Eric Joseph Jones-Saint Paul, MN

New York

Anthony B. Calderone-Centereach, NY*
Richard White-Brooklyn, NY

Oklahoma

Troy Lemaster-Bixby, OK
Randy Truong-Oklahoma City, OK

Pennsylvania

Ryan C. Healy-State College, PA
Jesse L. Nall-Lititz, PA

Wisconsin

Josh Bozelka-Marinette, WI
Christian Hernandez-Oconomowoc, WI

Japan

Arnaldo Fogaca

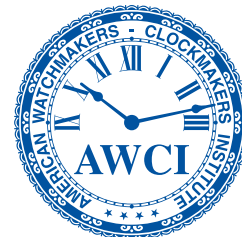
*AWCI welcomes back these individuals who have chosen to reinstate their membership.

“An excellent program—provides a meaningful learning experience for the novice as well as the professional. A good value.”

Student attending Modern Automatic Watches program, Fall 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. Class information is also available online at www.awci.com.



January 3-7, 2011	Modern Mechanical Chronographs, Servicing & Adjusting
January 31-February 4, 2011	Modern Automatic Watches
February 14-18, 2011	Basic Quartz Watch & Quartz Chronograph Repair
February 28-March 4, 2011	Servicing & Adjusting the Swiss Lever Escapement
March 7-11, 2011	Balance Staffing & Timing
April 11-15, 2011	Modern Watch Lubrication
June 13-17, 2011	Modern Mechanical Chronographs, Servicing & Adjusting

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.

January 10-13, 2011	AWCI Training Facility, Harrison, OH
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 21st Century Certified Watchmaker exam at the OSU Institute of Technology, Okmulgee, Oklahoma.

Frantz, Harry	Norman, OK
George, David	Colorado Springs, CO
Kamay, Paul	Windsor Locks, CT
Shin, Joungho	Tulsa, OK
Truong, Randy	Oklahoma City, OK

Certified Watchmaker 21

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

Antabelian, Avo	Los Angeles, CA
Baldwin, John	Seattle, WA
Belgardt, Raimund	Seattle, WA
Bramlett, Ryan	Denver, CO
Bullock, Jessica	Everett, WA
Curkan, Terry	Clearwater, FL
Fiveash, Floyd*	Olive Branch, MS
Gheorghe, Teofil	Roswell, GA
Hays, Timothy	Puyallup, WA
Hong, Viet	Westminster, CA
Hunter, Kelly	Portland, OR
Khan, Asad	Winston Salem, NC
Kroes, Jeana	Belgrade, MT
Kubes, Joseph	Fort Worth, TX
Swodeck, Barry	Portland, OR
Tam, Lisa	Honolulu, HI
Wong, Tommy	Herndon, VA

*Passed in 2009

A WEALTH OF MEMBER BENEFITS



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Take advantage of lower rates and broader benefits on comprehensive health insurance, long-term care, dental, disability and critical illness plans. Get a free comparison with your current plan. Plans are available in all 50 states--visit the AWCI website for more information.

Health Benefits Professionals & Association Health Program www.awci.com 888-450-3040



SUPPLEMENTAL INSURANCE

Numerous no-cost & discounted services available

Highlights of this program include a \$2,000 Accidental Death and Dismemberment Benefit available at no cost to AWCI members. You'll also appreciate the no-cost health Services Discount Card providing up to 60% discounts on prescriptions, vision care, hearing and chiropractic.

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PERSONAL PROPERTY INSURANCE

Coverage for watchmakers, clockmakers, hobbyists and collectors. Designed for our industry and the needs of both businesses and home-based craftsmen. Watchmakers plans include stock, shipping and transit coverages plus tools and machinery.

Goods owned, on consignment, or on memo can also be covered. Clockmakers can obtain similar coverages which can include stock on premises, stock at other locations, in transit or at exhibition.

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In only 5 simple steps you can have a professional website to give you perpetual online exposure and build your business. You can view and configure the website before you purchase. It's also easy to update. Choose from two packages of either \$8.95/mo. or \$18.95/mo. Walker Development Group www.awci.companysitecreator.com

AWCI CAREER CENTER

Connecting job-seekers with employers across the globe

This easy-to-use online Career Center connects professionals in our industry. For employers, you have several online options to insure your job postings reach highly skilled job seekers. For candidates, you can post resumes anonymously, search job postings or set up personal job alerts. Members and students can post resumes for free. Employers and candidates can also post listings in *Horological Times* magazine. Visit our website then click on the Career Center: www.awci.com



HOROLOGICAL TIMES MAGAZINE

The premier publication for watchmakers & clockmakers

You receive 12 issues of our full color monthly magazine.

This informative publication is your source for industry news, technical information and business-building articles for our industry. It's also your source for all AWCI news and events. Use our HT classifieds and bulletin boards to post buy-sell-trade industry information. *Horological Times Magazine* adunn@awci.com 866-367-2924, ext. 307

AWCI FREIGHT SAVINGS PLAN

Shipping discounts with FedEx and YRC

In February, 2011, the AWCI Freight Savings Plan will offer up to a 29% discount on select FedEx Express® services and up to 20% on select FedEx Ground® services. AWCI members can also save at least 70% on less-than-truckload shipping with YRC. Ship smart and save!

Pre-register today through Siriani.

www.siriani.com/awcifshp 800-554-0005



*Benefit rates and specifications are those available at the time of this printing. Specifics may change at any time. Additional terms and conditions may apply. Contact AWCI or the benefit provider for the most current benefit information.

L&R Cleaning Products from Twin City Supply

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Ammoniated Jewelry Concentrate

This popular cleaner is strong and effective, with the added power of ammonia. Adds sparkle and brilliance in minutes. Safe for use on gold, silver, diamonds and gemstones.

CL169	Pint (makes 1 gallon)	\$13.95
CL170	Gallon (makes 8 gallons)	31.95

Non-Ammoniated Jewelry Concentrate

The ideal solution for all jewelry cleaning without the added ammonia. Cleans safely and effectively, works on gold, diamonds and gems.

CL273	Gallon (makes 11 gallons)	\$32.95
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Instant Dip Silver Cleaner

Ellanar Dip instantly removes tarnish from sterling and most silver plates in seconds. This solution works so effectively and so quickly that as soon as Dip is applied the tarnish disappears. Simply dip, rinse, dry and silver looks like new.

CL173	16 oz bottle	\$5.40 ea	\$54.00 dz
CL175	Gallon	28.95	

Extra Fine Watch Cleaning Solution

Provides the highest possible shine for watch parts. Formulated for mechanical watch cleaning machines where a more efficient cleaning material is needed.

CL109	Gallon	\$39.95
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Waterless Nofome Watch Cleaning Solution

For use on all delicate watch parts. This solution cleans uniformly with thorough results.

CL101	Gallon	Discontinued, use CL109
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#111 Ultrasonic Watch Cleaning Solution, Ammoniated

Special formula for use with all L&R rinses and ultrasonic watch cleaning machines.

CL112	Gallon	\$42.95
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#3 Watch Rinsing Solution

A clear, petroleum distillate, containing no benzol or chlorinated solvents. Quick drying, leaves no oily film.

CL118	Gallon	\$39.95
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Duo-Lube Watch Lubricant

Two-step product allows cleaning and lubricating of all types of watch movement in less time. Use #1 for first rinse jar; #2 for second rinse jar.

CL128	2 Gallon Set, Pre-mixed	Call for price
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Ultrasonic Watch Rinsing Solution

Perfect for ultrasonic cavitation and can be used with all L&R watch cleaning solutions. Ideal with Solo-Lube or Duo-Lube lubricants. Fast drying, will not break down.

CL121	Gallon	\$39.95
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#566 Ultrasonic Watch Cleaning Solution, Non-Ammoniated

Use with L&R #3 Rinse or L&R Ultrasonic Watch Rinsing Solution.

CL115	Gallon	\$45.95
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Solo-Lube Watch Lubricant

Single step lubricant for use in last rinse jar only. Blended with L&R Ultrasonic Watch Rinsing Solution.

CL132	Gallon, Pre-Mixed	\$79.95
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#677 Waterless Clock Cleaning Solution

Ready to use, waterless, non-ammoniated formula. Use with L&R Clock Lube.

CL135	Gallon	\$45.95
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Clocklube

Complete lubricating and rinsing solution. Use with #677 Clock Cleaning Solution.

CL136	Gallon	\$54.95
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Clock Cleaning Solution Concentrate

Ammoniated, water-based formula is economical, and safe. Highly effective for ultrasonic, mechanical or manual methods. Non-flammable, contains no cyanide.

CL133	Pint (makes 1 gallon)	\$14.95
CL134	Gallon (makes 8 gallons)	53.95

PowerClean Heavy Duty Jewelry Cleaner Concentrate

Non-ammoniated, powerful wetting and cleaning agent for all types of manufactured jewelry.

CL184	Gallon	\$40.95
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Discontinued, while supplies last.

ALSO AVAILABLE:

#222 Ultrasonic Instrument Cleaning Solution

CL191	Gallon - Non Ammoniated	\$57.95
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Instrument Rinsing Solution

CL194	Gallon	\$41.25
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Ultrasonic Instrument Rinsing Solution

CL197	Gallon	\$50.95
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Prezyme Concentrate

CL242	Gallon	\$44.00
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We stock the complete line of L&R Ultrasonic Cleaning Machines!

PC3	Compact Unit	\$139.99
Q90	2 quart with Timer and Heater	245.00



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BY ROBERT D. PORTER, CMW

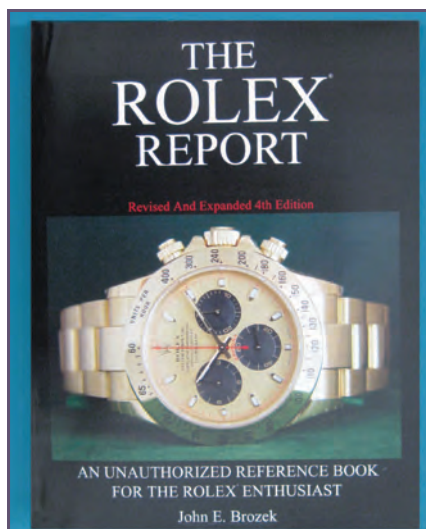
The Rolex Report, John E. Brozek

This softbound fourth edition, authored by John E. Brozek, is what many consider one of the best reference guides for Rolex collectors. This edition utilizes previous published information and adds much more to expand on the current slate of Rolex models and the continuing efforts to spot non-genuine models.

The book starts out with the customary examination of horological history and then establishes some Rolex history and facts. It moves on to model identification and an overview of common errors made when someone mistakenly purchases a replica.

The depth of information on how to identify non-genuine Rolex models is indeed comprehensive and should be very enlightening to nearly all enthusiasts of any experience level. It covers much of the voluminous data in the form of charts and appendixes, which cover serial numbers, dial configurations, optional pieces and bracelets. I found the layout easy to follow and it was a good read. It also allowed me to reference specific charts on movement manufacture and service part numbers.

The photos are in black and white and are clear enough to be helpful. This should prove to be valuable to anyone contemplating a purchase or servicing a Rolex model. I would highly recommend this for collectors and watchmakers alike. It is available for \$39.99 on www.Amazon.com.



Beginners Guide To Pocket Watches, Ian Beilby

The *Beginner's Guide to Pocket Watches* is an interesting pamphlet-type publication. It was published by *Clocks Magazine* and this particular edition was authored by Ian Beilby. The book starts out with some history and evolution of the pocket watches in relation to country of origin, case styles, metals and, of course, movement design.

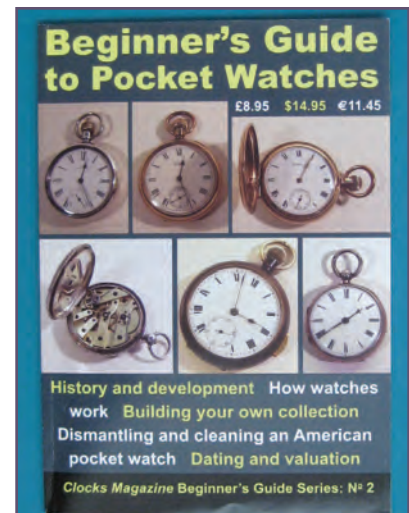
It continues on with collector's information and what style and types should be collectible and what the author feels are fair market prices.

There is some question as to accuracy of the expected costs but this could be attributed to out-of-date market analysis or regional experiences.

There is an attempt to impart some information on how to service these yourself with the aid of your local watchmaker to handle more difficult tasks, but again, the expectation of costs seems to be out of sync with current rates. Some of the information provided on servicing leans towards cost savings rather than proper care. The information in general seems to be aimed at someone beyond a beginner.

The photography is for the most part good with some photos being dark. Some captions are not clear enough so that the novice or beginner will have the right information. Overall for the price, at \$14.95, it seems a reasonable addition to a beginner's library.

It is available from *Clocks Magazine*. Go to www.clocks magazine.com and look under "Beginners Guides."



Blue Chip is Now All Black

The model series Blue Chip in stainless steel is now available with a matt PVD black finishing. The eye-catching flutes in the solid 46.50 mm stainless steel case lend the watch a unique presence. This model series of four versions offers first a modern chronograph with date at nine o'clock, an automatic movement with power reserve, a traditional automatic caliber and a hand winding model.

The first two—chronograph and power reserve models—offer a sleek sophistication while balancing a contemporary look. Maximum authenticity is found in the last two models—automatic and manual calibers—offering a clear view of the partially skeletonized movement. In every design the powerful movement has been hand-engraved and is visible through the transparent case back.

Armin Strom AG loses no time in becoming an authentic watch manufacturer. Following the launch of the first of its caliber to be produced entirely in-house, the ARM09, the company, Armin Strom AG, has now become a manufacturer of its own movements and achieved the status of an exclusive watch manufacturer. Additionally, last summer the company moved into new premises in the watchmaking center of Biel/Bienne, Switzerland. For more information contact: info@totallyworthit.com.

The Passing of Rolex C.E.O., Allen Brill

The Institute regrets the loss of an important friend and supporter with the recent passing of Allen Brill, President and C.E.O. of Rolex Watch USA. A Vietnam veteran, Mr. Brill first began his professional career in the jewelry industry prior to joining Rolex as a salesman in 1978. He rose through the ranks to become its head in 2004.

Under his leadership watchmaking education and certification were both championed by Rolex as being essential to the successful future of the U.S. watch market. The steady progress we have made with raising the professional standards in these areas is a direct result of his guidance and vision.

AWCI is grateful for his leadership and is privileged to be an active part of this ongoing legacy.



RICHEMONT INTRODUCES 3000-HOUR TRAINING PROGRAM

In 2007 Richemont North America decided to relocate their main After-Sales Service facility to Fort Worth, Texas and the opportunity to include a training and education department was one not to pass on. As a strategic decision, Richemont built the NAIOSW (North America Institute of Swiss Watchmaking) within its new state-of-the-art location. Three



years later the Richemont Technical Center (RTC) is not only servicing 10 major luxury brands, it also provides training to watchmakers in the retail and wholesale stores,

selling the world's most prestigious luxury watch brands. Furthermore, the first group of students of the NAIOSW is anticipated to successfully complete the 3000-hour watchmaking program in April of 2011. Since WOSTEP (Watchmakers Of Switzerland Technical Educational Program) opened its doors in Neuchatel, Switzerland in 1966, they have expanded the proliferation of watchmaking skills and knowledge all over the world. Through a well-controlled network of partnership schools, WOSTEP provides an industry standard for the skill set required to become a well-rounded watchmaker. The organization today stands right in the middle of the industry, catering to the market's needs and ever-changing retail dynamics. Where the core watchmaker education is built around the 3000-hour program delivering skilled watchmakers, WOSTEP and the industry understood there was a need for an educational program geared towards the more basic service needs within the stores.

The luxury industry has become increasingly service-minded, and many retailers desire to bring the service closer to their valued clients. Consumers are more and more knowledgeable and, understandably, more demanding as far as the quality and communi-



cation about the repair and maintenance of their watches is concerned.

For Richemont it is imperative that the people who are working on our clients' watches are properly trained and educated. New technology and new skills such as workshop organization and inventory management are paramount for today's watchmakers in order to be able to run an efficient After-Sales Service organization.

Consumers are able to buy a large variety of watches in a large number of stores and boutiques, so the decision on what drives customer loyalty depends increasingly on the service levels, knowledge, quality and craftsmanship provided by the store and its staff. Over the last two years WOSTEP developed, in close collaboration with Richemont North America, an 800-hour Encasing Technician Course (ETC). The ETC provides the technician with a thorough technical understanding in the functioning of watch movements, hands, dial and crystal replacement, replacing batteries, cleaning and finishing cases. It also includes a module emphasizing the use of modern movement test equipment. The ETC course provides a skill set for mechanically-oriented people who are interested in finding long-term employment in the watch industry at an entry level, and those seeking a WOSTEP certification. It caters, as well, to the 3000-hour student who is looking to compliment their education with additional training in case and bracelet maintenance. The ETC course is exclusively available at IOSW schools around the world.



To have a watchmaker on the premises is a plus for the consumer, elevating any service experience. Having a WOSTEP-certified watchmaker on the premises is a strategic investment, ensuring the retailer, as well as the consumer, that any work done is of the highest standards. It also assures the watchmaker's training is supported by an international certification from a Swiss educational institute focused on the quality of the work provided by its students.

If you would like to know more about an upcoming class, please feel free to contact us at: www.IOSW.com, or call us at 817-785-2420.

Affiliate Chapter News

FASCINATING CLOCK CASE MADE FROM OLD PIANO

At the Minnesota Clockmakers Guild November, 2010 meeting, Al Wenzel demonstrated how he fashioned a new clock case from wood he salvaged in an old piano. He ingeniously used not only the fine wood, but also incorporated piano pedal hardware, inscriptions and other pieces in his unique design. (View his handiwork below.)

The December meeting included an announcement that MCG officers have agreed to stay in their current positions for another terms. There were also presentations on:

- Seth Thomas clock renovation challenges by Paul Engebretson
- Wooden tail stand by Dave Swart
- Specially made trammel by Al Wenzel



Piano pedal hardware mounted on side of case as a reminder of the case's beginnings.



Al Wenzel describing how he made clock case.



Clock case made of wood salvaged from old piano.



Piano maker's name prominently shown in lower section.



Piano serial number imprinted in wood.

2010 in Review:

- We ended the year with 44 paid members
- 22 members attended at least one meeting and we averaged 11 members per meeting
- We had 18 guests attend meetings
- We held 11 monthly meetings
- We held a joint Symposium with Minnesota Watchmakers-Clockmakers Association
- We offered a three-day ATMOS Clock Repair Class

Stable Investing In: Unstable Times

BY DALE H. COATES, CFA, JOHNSON INVESTMENT COUNSEL, INC.

This is an overview of a financial presentation given during AWCI's 50th Anniversary Convention and Annual Symposium in August of 2010. The information was so well received we thought our members who could not attend would appreciate a recap of the presentation. Mr. Coates is an investment counselor with Johnson Investment Counsel, Inc., Ohio's largest independent wealth management firm. Mr. Johnson assists AWCI and a range of companies in the Midwest with their financial planning.

The following are highlights of Mr. Johnson's assessment of the country's current financial climate and his general advice for investing in the near future.



CURRENT ECONOMIC STATUS: Expect Slow Growth with Elevated Risks

What can you expect in the coming year?

1. The "Great Recession" is finally over and expansion is underway
2. The domestic recovery, however, faces headwinds to growth, which are:
 - A weak job market with unemployment expected to decline very slowly
 - Deleveraging may continue to weigh on consumer and business spending
 - Access to credit will remain constrained
 - Fiscal restraint is likely to emerge in 2011
3. The probability of a double-dip recession is still low, although the risks are increasing
4. Global growth favors the international and emerging economies
5. Inflation should remain modest for now

INVESTMENT RECOMMENDATIONS: Expect Overall Returns to be Modest

What investment methods should you use?

1. **Diversify your investment approach:**
 - Diversify among asset classes and styles to reduce risk and enhance return
2. **Focus on quality securities and funds**
3. **Income is important to performance:**
 - Look for dividend-paying stocks and quality corporate and municipal bonds
4. **Employ a defensive growth strategy:**
 - Blend together conservative securities and global cyclical investments
5. **Think globally:**
 - Invest in companies that reach into the emerging economies
6. **"Be an ant, not a grasshopper:"**
 - Save more than you spend and take advantage of compounding returns



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.

American Watchmakers Clockmakers Institute
701 Enterprise Drive Harrison, OH 45030-1696
Fax: 513 367 1414 Phone: 513 367 9800 Toll-Free: 866 367 2924



2010 Horological Times Technical Index

Volume 34, Year 2010

HOW TO READ THE INDEX

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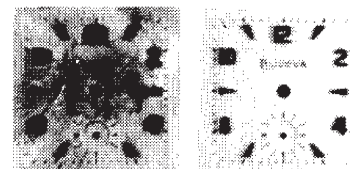
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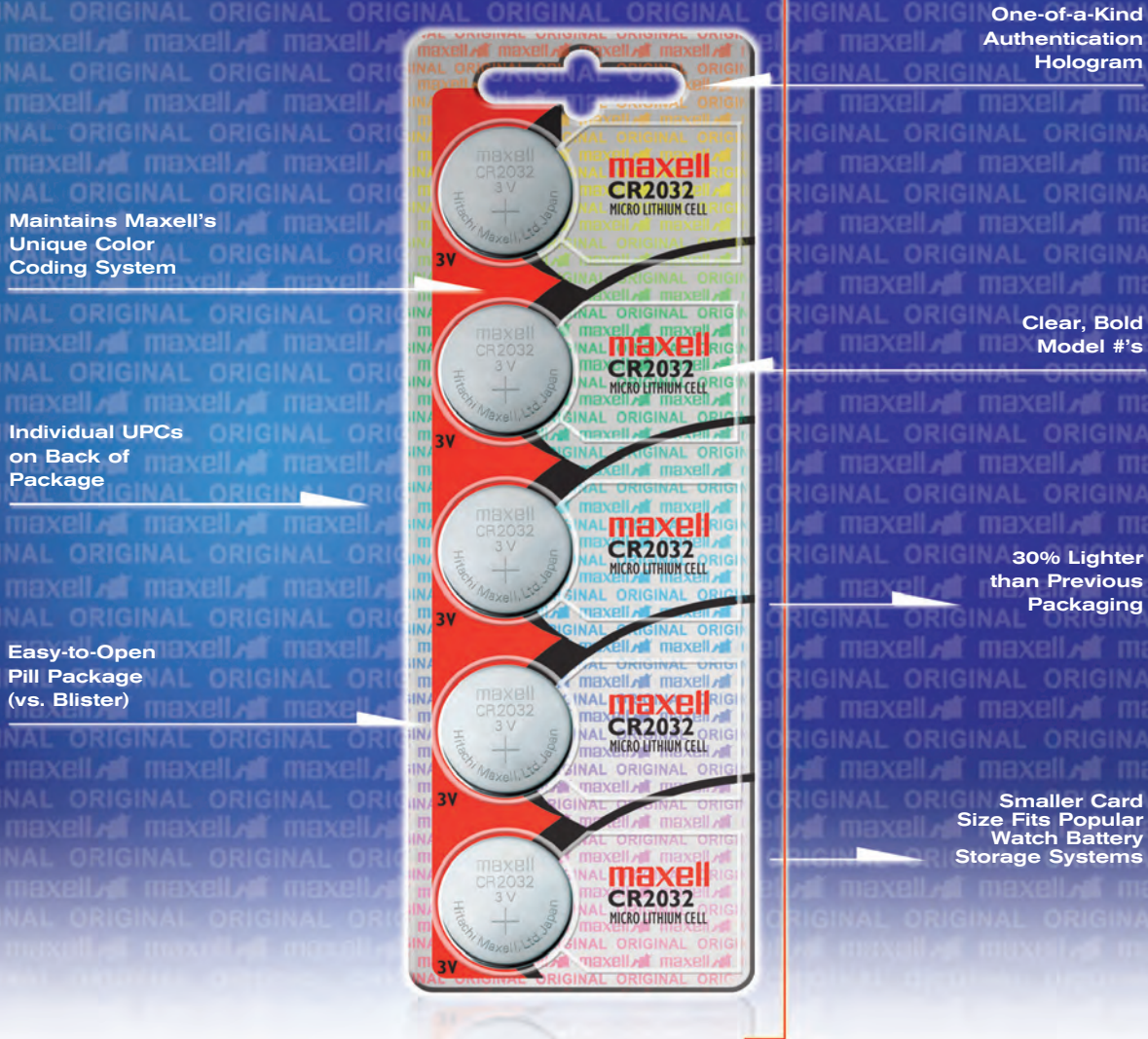
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