HOROLOGICAL TIMES™

September 2015

SETTING SERVICE STANDARDS AND EDUCATING THE HOROLOGICAL COMMUNITY



AMERICAN WATCHMAKERS-CLOCKMAKERS INSTITUTE

Annual Convention & Educational Symposium

Kansas City, Missouri

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Nivarox hairspring fit to balance with ETACHRON regulating system.
Photo by Jordan P. Ficklin

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OUR VISION:

AWCI's vision is to have an educated and passionate horological community practicing the highest standards and with the resources to provide quality goods and services.

OUR MISSION:

Setting service standards and educating the horological community.

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FRED T. WHITE, CMW21

The Four P's of Watchmaking and Clockmaking...
PATIENCE ~ ***PRIDE*** ~ ***PASSION*** ~ ***PERSEVERANCE***



Fred T. White
fwhite@awci.com

Perseverance

The definition of perseverance is steadfastness in doing something difficult or delay in achieving success. It is a first cousin to patience. How many times have we as watchmakers and clockmakers been faced with a problem that took a lot of time to solve? And then there is the "ah ha moment" when we say, "Why didn't I see that before?" Or you call a friend and ask, "Have you ever encountered a problem like this?"

I was recently working on a 12 size Elgin that would stop after several hours. I purchased a new-old stock barrel thinking that might be the problem—but to my surprise, it did not solve it. I was suspicious of the third wheel. It was slightly out of true in the flat, and it was very difficult to see if it might be touching the barrel. After some time of trying, I was able to catch the wheel just as it touched the barrel. Patience and perseverance paid off. If you are to achieve success, you must never give up.

One of the strongest images of perseverance in my mind is Hyvon Ngetich, a runner from Kenya. She ran in a marathon and finished in 2 hours, 54 minutes, and 21 seconds. But that is not what is so fantastic. She would have come in first place but collapsed 1,312 feet from the finish line. Ngetich stumbled and fell when she was so close to the finish line, and then she crawled the rest of the way to finish in third place. Later, she didn't remember finishing the race.

Perseverance, a very strong quality, makes people push for success in whatever endeavor they try. Thomas Edison said, "I have not failed. I've just found 10,000 ways that won't work." We as watchmakers and clockmakers must find a way to persist. It may require that we relearn some of the skills we learned as beginners in this trade. My advice is to never, never, never give up. Keep moving forward, searching for a solution to those difficult problems that we face, whether it is a parts problem or that stubborn watch or clock that is on the back of your bench.

What seems impossible just hasn't been done yet. It's up to you to keep pushing on until you find a solution. Do you remember the first time you disassembled an ETA 7750 or any other complicated timepiece? Do you remember how difficult it seemed? After you'd done one or two, it didn't seem so complicated. Steve Jobs said, "I'm convinced about half of what separates the successful entrepreneurs from the nonsuccessful ones is pure perseverance." You will never know what you can do until you try. So the next time you are looking at that complicated problem, keep on trying and never give up.

Often people stop when success is just around the corner. A gentleman in Maryland caught the gold fever and went to Colorado and staked a claim when he discovered gold. He talked several of his friends into backing him, and he bought the equipment needed, went back to his claim, and hauled out enough gold to pay for the equipment. Then disaster struck—the vein ran out. He sold the equipment and the claim for pennies on the dollar and came home defeated. The person who bought the claim sought the advice of a mining engineer and discovered the vein only a few feet away, took out a large amount of gold, and became a rich man. When you feel defeated, seek advice from an expert. Success could be right in front of you.

Obstacles can't stop you. Problems can't stop you. Other people can't stop you. The only thing that can stop you is yourself.

JORDAN P. FICKLIN, CW21

a message from the executive director



Jordan P. Ficklin
jordan@awci.com

It is September. Fall is just around the corner. Our 55th annual convention will be here before you know it. Hopefully, you have already made plans to attend the convention. If you have not yet registered, it's not too late. Rates have increased a little, but the convention is still an amazing value at only $579. The City of Fountains is going to be wonderful in October, and I, for one, have already started packing my bags!

The AWCI convention has always been a big deal. Delegates come from all over the United States. Representatives attend from REC schools, and industry members are everywhere. The 25th anniversary convention featured the likes of astronaut Scott Carpenter, the legendary George Daniels, the Smithsonian's Carlene Stephens, and Joe Thompson. Sixteen instructors attended from 13 schools and taught hands-on seminars. Delegates came from every affiliate chapter, including one as far away as New Zealand! Of course, there was no Facebook, Internet chat rooms, or Skype then either.

This year's convention will also be a significant event. We have made a special effort to provide more educational and networking opportunities than ever before. In case you haven't been paying attention, we have a multitude of classes starting as early as Monday, September 28. The Chronometer Club is hosting their annual seminar, but space is limited. Jules Borel & Co. is hosting a tour and welcome reception. The vendor fair will have strong representation from local distributors and international vendors, including Witschi, Elma, Bergeon, Renata, and Merard. The American brands Niall and Martenero will also be in attendance. The opportunities are there to make the convention a three-, four-, five-, or six-day experience.

If you have never been to a convention before, you might wonder why we make such a big deal about it. Look back to the November 2014 issue of *Horological Times* for some reflections and commentary on last year's convention. You will find that the convention is the perfect mix of social gatherings, educational opportunities, and business meetings—and it is possibly the most valuable thing AWCI has to offer its members.

Here are some of the opportunities you can take advantage of—

Are you looking for a way to charge more money for your services? At the convention you can find out what others are charging and how they sell their services to their customers.

Are you looking to expand your services? At the convention you can build relationships with other watchmakers and clockmakers who will make it possible for you to accept repair work you would have had to refuse in the past.

Are you trying to reduce your costs? Kari Halme of Rolex USA has toured hundreds of workshops, and he knows what works and what doesn't work in a repair shop. He will be sharing his expertise so that you can be more efficient and productive as a watchmaker, which will reduce your average cost of repair.

Are you interested in what's new in the business? How about 3D printing? That's relatively new. Nicholas Manousos will bring the world of 3D printing into focus right before your eyes.

Are you a clockmaker looking for educational opportunities? Jerry Faier will be teaching a class on servicing escapements, and a group of experts will lead a panel discussion answering your clock questions.

Do you like gifts and free drinks? The convention has both.

Finally, our keynote speaker this year is Michael Wilson. Michael is a Kansas City native and the founder and CEO of Niall, a company focused on challenging the status quo and those who say American manufacturing is dead.Through its flagship product line, luxury timepieces, Niall is on a quest to strike the perfect balance of style and expert craftsmanship while creating the next great American brand in the process. Michael will share his vision for watch and clock manufacturing in the United States and kick off the discussion about how AWCI and its members can support the growth of American watch and clock manufacturing. Read more about Niall in the November 2014 HT.

If you are unable to attend, a report of the proceedings of the convention will appear in *Horological Times*.



Timing

Our topic for this month is Timing. Our cover photo shows a Nivarox hairspring fit to balance with ETACHRON regulating system. The photo is composed from 16 separate images taken at different focal lengths using the Leica DMS 300 microscope. Because the microscope has a shallow depth of field, each image was sharp in only one area. The 16 images were then combined using Photoshop to create one sharp image. Also on the topic of timing, on page 25 you'll find the article "A Faulty Oscillator?" by Dale LaDue, and on page 20 you can read a discussion on isochronism by Jack Kurdzionak.

Burning Questions

By now all grade school students are probably back in the classroom. At the end of last school year AWCI got a request from a fifth-grader in Michigan. As part of a research project, students were supposed to research a "burning question" they'd always had. This student wanted to know how clocks were made. Cindy Whitehead passed along the student's request to clockmaker Michael Gainey. Michael took the time to respond fully to the student's list of questions. Kids' questions often remind us of the knowledge that we adults take for granted. After explaining the history of clockmaking and that clocks went from being handmade by one person to being mass-produced in factories, Michael said, "The clockmaker did not go away, however. The clockmaker now became the most logical choice to go to when you needed your clock repaired. In other words, the 'clockmaker' now became the 'clock repairman.'"

Another answer touched on something all clockmakers and watchmakers are familiar with: "The most challenging thing in repair is that many parts are no longer available. If you cannot find an old movement to take a part from, you have to make the part yourself."

In answer to the question, "What is your favorite thing about clocks?" Michael marveled at the ingenuity of clockmakers of the past. "Clocks are fascinating to me because their development occurred at a time before electricity and were made without all the modern tools we have today."

It's good to be open to answering questions from younger generations. Who knows... you could be preparing the watchmakers and clockmakers—or customers—of the future.

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TOP 5 Reasons You Should Write for *Horological Times*

5. Share your knowledge with your colleagues
4. Learn something new as you research your topic
3. Earn respect among your peers
2. Give back to the horological community
1. Get paid for sharing your valuable knowledge

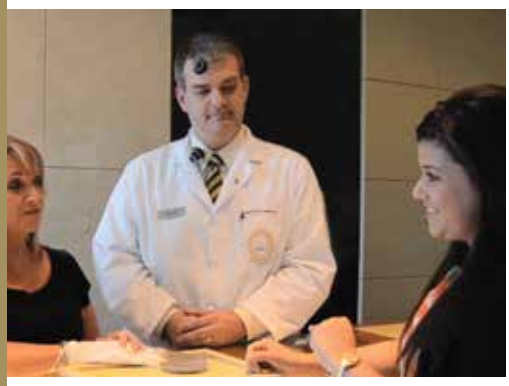
Writers for *Horological Times* can earn between $300 and $875 or more per article. It depends on the length of the article (25 cents per word). Earn a 10% bonus for submitting assigned articles early or on time.

If you'd like to write for *Horological Times*, email editor@awci.com for guidelines.











Are you AWCI Certified? Is your training up to date?

Customers who receive
high-quality, professional watch repair services
are more likely to make
watch and jewelry purchases in your store
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A Certified Watchmaker

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Invest in your business with membership in AWCI, through continuing education classes, and by becoming certified. These are the building blocks to ***the success of your watch repair business.***

American Watchmakers-Clockmakers Institute would like to offer you the opportunity to obtain the training for your employees that can elevate their capabilities to the highest standards in the industry. We offer training from the finest instructors in the industry on topics from basic to advanced.

AWCI Training Includes

- Introduction to Watch Repair
- 21st Century Watchmaking Standards
- Modern Mechanical Chronograph: 7750
- The Art of Watch Adjusting: Escapement, Timing & Oscillator Work
- Balance Staffing & Timing
- Modern Automatic Watches
- Quartz Watch Repair & Testing
- Polishing & Refinishing
- Essential Micromechanics: The Watchmaker's Lathe
- Precision Timing & Adjusting (advanced class)
- Vintage Wristwatches
- Advanced 21: Caliber Specific Training
- And More

Call or email our Education & Certification Coordinator for more information:
education@awci.com certification@awci.com | Phone: 1-866-367-2924, ext. 303

educational calendar

AMERICAN WATCHMAKERS

AWCI's goal is to continue to provide high-quality continuing education for watchmakers of all skill levels. Having Tom Schomaker as our full-time watchmaking instructor ensures just that. He brings with him many years of watchmaking experience as well as a passion and talent for teaching. Whether you are just starting out or have 30 years' experience we guarantee you can learn something in our state-of-the-art classroom. Together with the support of the education committee and the REC, AWCI is working to introduce classes designed to help train retail watch technicians, develop certified watchmakers, and prepare a new generation of master watchmakers.

Prices below reflect member's discount! Not sure which course to sign up for? Please log on to our website and fill out the Professional Experience Questionnaire. Contact us so we can help you find the best course suited to your skill level, expertise, and interests.

Don't see the course you want here? We are always trying to expand and improve our course offerings and we welcome suggestions. We may also have a course already developed that isn't scheduled, and we can try to accommodate you.

Looking for someone to come to your business, chapter, or guild to teach a course? We do that too. Please contact our education and certification coordinator for more information.

We hope to see you, your friends, and your associates in our classroom soon!

Advanced 21 Rolex Caliber 2135 (October 12-16)

This course teaches the standard operating procedures (SOP) for disassembly, service, water-resistance testing, and reassembly of Rolex watches, featuring the separation of functions bezel. You will gain hands-on training with the proper tools and with multiple case designs. Prerequisites: CW21, WOSTEP, or instructor approval.

September 7-11

$1,095
WATCH 303: Vintage Wristwatch Service Procedures
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
A new class from AWCI focusing on the unique service requirements for vintage watches. Prerequisites: Completion of 21st-Century Watchmaking Standards course, CW21, WOSTEP, or instructor approval.

September 28-29

$595 (SOLD OUT)
High-End Decoration & Refinishing
Instructor: Henrik Korpela, *K&H Watchmaking Competence Center in Le Locle, Switzerland*
Kansas City, Missouri
Mr. Korpela will travel from Switzerland where he is the instructor at the K&H Competence Center in Le Locle to attend the AWCI convention and give a two-day seminar on high-end horological decoration and finishing. The course, which takes place just ahead of the AWCI Annual Convention and Chronometer Club Seminar, is limited to 12 students. Topics covered will include black polishing (specular polishing) screws, round polishing screws, and bluing steeled components. If time allows, additional topics may include applying straight grain finishes and sablage (a matte finish with characteristics similar to sandblasting).

September 29

$349
WATCH 375: Separate Function Case Course for Rolex Watches
Instructor: Tom Schomaker, CMW21
Kansas City, Missouri
This course teaches the standard operating procedures (SOP) for disassembly, service, water-resistance testing, and reassembly of Rolex watches, featuring the separation of functions bezel. You will gain hands-on training with the proper tools and with multiple case designs.

October 1-3

$579
AWCI Convention
Hotel Phillips
Kansas City, Missouri

October 12-16

$1,095
WATCH 301: Advanced 21 Rolex Caliber 2135
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This course covers the standard operating procedures specific to the Rolex caliber 2135 movement.
Prerequisites: CW21, WOSTEP, or other Industry-recognized certification or diploma.

November 2-4

$2,495
CW21 Exam
OSU
Okmulgee, Oklahoma

November 9-13

$1,095
WATCH 301: Advanced 21 Rolex Caliber 2135
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This course covers the standard operating procedures

specific to the Rolex caliber 2135 movement.
Prerequisites: CW21, WOSTEP, or other Industry recognized certification or diploma.

November 16-20
$1,350 (includes polishing kit)
WATCH 175: Case & Bracelet Refinishing
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
Today's luxury watch consumer demands perfection. This course is perfect for the watchmaker or dedicated refinisher. It will help you achieve the different finishes on modern watch cases. Also covered is disassembly and assembly of common watch cases.

2016 Class Schedule

January 20-22
$595
WATCH 102: Watchmaking Theory
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio

February 1-5
$1,095
WATCH 250: Essential Micromechanics: The Watchmaker's Lathe
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
The purpose of this class is to teach students fundamental micromechanical skills involving the watchmaker's lathe. This includes preparing and sharpening gravers, basic cutting geometry, turning cylinders in brass and steel, drilling on the lathe, parting off, measuring, and will include barrel bushing manufacturing.

February 15-19
$1,095
WATCH 190: 21st Century Watchmaking Standards
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This course will teach students the fundamentals of modern mechanical watch repair for models most prevalent on the market today. Topics covered will include cleanliness, lubrication, endshake adjustment, and may include verification and analysis of escapement function. Prerequisites: Basic understanding of manual-wind watch function, knowledge of watch terminology, and ownership of basic hand tools.

February 22-26
$1,095
WATCH 230: Balance Staffing & Timing
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This course will teach the student all the fundamentals of balance staff replacement. Topics covered will include the verification and analysis of the escapement function, poising (static and dynamic), truing and timing adjustment in a mechanical watch, cutting out a balance staff on a lathe as well as modern methods. Calibers used include ETA 6497 and ETA 2824.

Feb 29-March 4
$2,495
CW21 Exam
AWCI Headquarters
Harrison, Ohio

March 14-18
$1,350 (includes polishing kit)
WATCH 175: Case & Bracelet Refinishing
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
Today's luxury watch consumer demands perfection. This course is perfect for the watchmaker or dedicated refinisher. It will help you achieve the different finishes on modern watch cases. Also covered is disassembly and assembly of common watch cases.

March 28-April 1
$1,095
WATCH 220: Modern Mechanical Chronograph – ETA 7750
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This course focuses on the service and adjustment of modern mechanical chronographs like the ETA 7750 and is the perfect course for anyone preparing for the CW21 Exam. Students should have a solid understanding of basic service procedures as this course will focus on the chronograph mechanism itself.

April 4-8
$1,095
WATCH 210: Quartz & Quartz Chronograph Service Procedures & Diagnostics
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
The purpose of this course is to teach the student all the fundamentals of modern basic quartz watch repair and quartz chronographs that are most prevalent in today's market. The student will learn how to perform the various important electronic tests, e.g., current consumption, coil resistance, lower working voltage, fault finding, etc.

April 18-22
$1,095
WATCH 420: Vintage Chronograph
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This 5-day class covers in detail the features, adjustments, theory, and service procedures of 20th-century chronographs featuring one-piece cams, two-piece cams, and column wheels and includes technical instruction on the intricacies and unique features of early chronographs from Valjoux, Omega, Movado, and Heuer.

April 25-29
$2,495
CW21 Exam
AWCI Headquarters
Harrison, Ohio

May 2-6
$1,095
WATCH 200: Modern Automatic
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
The purpose of this course is to teach the student all the fundamentals of modern mechanical automatic watch repair that are most prevalent in today's market. The student will learn how to perform the various components, cleaning, assembling, adjustments, dialing, and casing.

Continued on next page...

For additional details about specific courses in comprehensive syllabi form, including complete tool lists, visit: http://www.awci.com/education-certification/education2/list-of-continuing-education-courses/ or contact Cindy Whitehead at 866-FOR-AWCI (367-2924), ext. 303.

May 16-20
$1,095
WATCH 240 : Servicing The Lever Escapement
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This intense 5-day course will help you refine your adjusting skills. The course covers all of the adjustments for the swiss lever escapement, hairspring, and balance. Also covered is the ETAChron system.

June 13-17
$1,095
WATCH 100: Introduction to Watch Repair
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
A survey course for the new or prospective watchmaker covering the basic skills and techniques used by the modern watchmaker. This class is perfect for anyone thinking about entering the profession of watchmaking or for the individual who just wants to gain a better appreciation for the art of watchmaking. Students who take this class will be prepared to advance to Basic Watchmaking II. Before attending, students should study *Theory of Horology* and be familiar with the basic nomenclature of watchmaking.

June 27- Jul 1
$1,295
WATCH 290: CW21 Preparatory Course
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This course is designed to help individuals who have taken courses at AWCI to identify areas in which improvement is still needed and provide them with individualized instruction to help them prepare for successful completion of the CW21 Exam.
Prerequisites: Successful completion of 3 or more 200 level AWCI courses.

July 11-15
$1,095
WATCH 220: Modern Mechanical Chronograph – ETA 7750
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
This course focuses on the service and adjustment of modern mechanical chronographs like the ETA 7750 and is the perfect course for anyone preparing for the CW21 Exam. Students should have a solid understanding of basic service procedures as this course will focus on the chronograph mechanism itself.

August 8-12
$1,095
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Prerequisites: Basic understanding of manual wind watch function, knowledge of watch terminology, and ownership of basic hand tools.

August 22-26
$1,095
WATCH 210: Quartz & Quartz Chronograph Service Procedures & Diagnostics
Instructor: Tom Schomaker, CMW21
AWCI Headquarters
Harrison, Ohio
The purpose of this course is to teach the student all the fundamentals of modern basic quartz watch repair and quartz chronographs that are most prevalent in today's market. The student will learn how to perform the various important electronic tests, e.g., current consumption, coil resistance, lower working voltage, fault finding, etc.

Chapter 1 Scholarship Grant—2016

The directors of the Philadelphia Chapter No. 1 of the National Association of Watch and Clock Collectors, Inc. (Chapter 1) invite you to apply for a scholarship grant to attend a recognized school of horology in the US or an NAWCC workshop. They are awarding one or more grants of $500 to cover all or part of tuition and registration costs for a single course. A list of NAWCC workshops is available at www.nawcc.org.

Scholarship awards are given to promote the study of horology. Scholarship awardees will be encouraged but not required to help at their NAWCC home chapter by promoting educational programs of the chapter through lectures, workshops, etc.

For an application form, call Charles Buttz, Scholarship Committee Chair, at 570-595-3306 or email shelters@ptd.net.

Applications must be received by
October 15, 2015.

Awards will be made by
December 1, 2015.

For additional details about specific courses in comprehensive syllabi form, including complete tool lists, visit: http://www.awci.com/education-certification/education2/list-of-continuing-education-courses/ or contact Cindy Whitehead at 866-FOR-AWCI (367-2924), ext. 303.

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Topics include:

- Tool preparation and maintenance
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- Electrical tests
- Case closing
- Setting complicated watches
- Where to find technical information and support

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8AM – 5PM
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Request the class in your city

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All participants will receive a **FREE** Tool Kit – a $250 Value!

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Cameron Weiss
American Watchmaker

By Donna Hardy



As the date of AWCI's annual convention in the heart of America—Kansas, City, Missouri—draws closer, we take a look at one of the watchmakers who is rekindling the American watchmaking spirit, Cameron Weiss.



Kansas City Here We Come!

By Terry Kurdzionak, Convention Committee Chair

Well, here it is September and we are just a few weeks away from our convention in Kansas City! There is still time to register, even though the August 15 deadline rate has passed.

Here are some answers to questions you may have

Q How do we get to our hotel from the airport?

A The best way is to either call or book online the Super Shuttle (www.supershuttle.com) 1-800-BLUE VAN (258-3826)

Reservations are $31.50 per person round trip. When your flight has landed and you have picked up your baggage, go to the blue kiosk near the baggage claim and tell them you are there. They will direct you to the exit where you will find your assigned shuttle. They run every half hour, 24 hours a day, seven days a week. They will take you back to the airport on your day of departure. They will even come into your hotel lobby to announce that they are there for you.

Q Where do I get my registration package?

A Cindy Whitehead and I will be at the AWCI table on the mezzanine level above the lobby, accessible by stairway and elevator. If you look up, you will see us!

Q Can we grab dinner that evening close by?

A Absolutely! The restaurant adjacent to the hotel is excellent and reasonably priced. We are also just a few blocks from the restaurant/entertainment district.

Q Are any meals included with our registration?

A Yes, breakfast on Thursday, Friday, and Saturday; lunch and two snack-drink breaks on Friday, and dinner at the Awards Banquet on Saturday. Plus, we have a hospitality area each evening with drinks and snacks provided by the hotel, included with your registration fee.

Q I didn't buy a ticket for the ELM Trust dinner. Can I buy one at the door?

A No. We need to let the restaurant know ahead of time how many will be in attendance, and there is limited seating. Please call AWCI and purchase your tickets if you want to attend.

Several of the vendors have requested time to do a demonstration of equipment or a presentation during the fair, but within a classroom. We have a space for this across the hall, and as of this writing (late July) we have four vendors doing demonstrations and/or presentations. You will receive a schedule of these presentations in your convention packet when you check in at our AWCI convention registration area of the hotel. As of this writing, the four presentations will be done by Witschi, Elma, Niall Watch, and Eckcells, each being 30 minutes long with an absolute maximum of 45 minutes.

So, I am excited and hope that you are as well.

See you in Kansas City!

Terry Kurdzionak is a graduate of Northeastern University College of Nursing. She has been involved in the family watch/clock/material business for 28 years and has served as an officer and board member of AWCI as well as the membership and convention committees.

Hurry Register Now!

Registration Fees

HOTEL PHILLIPS
KANSAS CITY

Individual Registration $579
Includes: Business Meetings, Keynote Presentation, Continuing Education Classes, Tour of Jules Borel & Co., Vendor Fair, and Awards Banquet

Plus One (Spouse/Children) $299
Includes: Awards Banquet, Saturday Breakfast, Hospitality Suite, and Plus One Activities

Elm Trust Fundraising Dinner
$75 per person
Help support horological education by giving generously to the ELM Trust

To register or make a sponsorship contribution, please contact
Cindy Whitehead at 866-367-2924 or cindy@awci.com



Keynote Address

Michael Wilson is the co-founder and CEO of Niall Luxury, a watch-making company determined to build luxury timepieces in America. Their debut watch, the Niall One, was released last fall. Michael will share his vision for the future of luxury goods, including watches manufactured in the United States, Thursday morning at the keynote address.

https://youtu.be/9Gi1poNHIfc

Schedule of Events

(subject to change)
for more information visit
www.awci.com/symposium

Wednesday, September 30

3-8 p.m.
Registration

9 p.m.
The Escapement: Hospitality Suite

Thursday, October 1

7-9 a.m.
Registration

8 a.m.
Breakfast

9 a.m.
Keynote Address

10:30 a.m.
Affiliate Chapter Meeting

1:30 p.m.
Industry Advisory Board Meeting

3 p.m.
Board of Directors' Meeting

5:30 p.m.
Tour of Jules Borel & Co. (limited availability)

8 p.m.
The Escapement: Hospitality Suite

Friday, October 2

8 a.m.
Breakfast

8 a.m. – 4 p.m.
Vendor Fair & American Showcase

12 p.m.
Luncheon

6 p.m.
ELM Trust Fundraiser Dinner

9 p.m.
The Escapement: Hospitality Suite

Saturday, October 3

7 a.m.
Breakfast

8 a.m. – 12 p.m.
Educational Symposium

1–5 p.m.
Educational Symposium

6 p.m.
Awards Banquet

9 p.m.
The Escapement: Hospitality Suite

Educational Symposium

Saturday, October 3, 2015
Hotel Phillips, Kansas City, MO - Continuing Education - 1 CEU available for all-day participation

Included in your registration fee is a full day of continuing education with up to 1 CEU available. Choose between multiple tracks. Attendees can choose to take:

★ All watch-related classes ★ All clock-related classes ★ A mix of both watch-related and clock-related classes

Clockmaking

3D Printing in Horology (8-10 a.m.)

As vice president of the Horological Society of New York and a technical editor for *HODINKEE*, Nicholas Manousos has been exploring 3D printing in the world of horology for many years. He has constructed a 10X scale model of a coaxial escapement tourbillon and will be demonstrating how 3D printing is impacting the world of horology.

Presenter: Nicholas Manousos

Clockmaker's Round Table (10 a.m. - 12 p.m.)

Bring your clocks and your questions and participate in a round-table discussion of clock repair with experts in the field.

Panelists: Jerry Faier, CMC21, FAWCI ★ Bob Ockenden, CMC ★ Michael Gainey, CC21

Escapement Adjusting (1-5 p.m.)

During this course the class will review the principles for properly adjusting any escapement (watch or clock); practice using a discussed routine to adjust any escapement; practice using the routine by reviewing a number of clock movements that have inserted escapement errors and what adjustments should be made; and apply the routine to a number of common clock and watch escapements. I will be bringing several models for the participants to use to help give them practice in some of the manipulations studied. We will review the classic deadbeat escapement, the half deadbeat, the recoil escapement (both European style as well as the American and German strap pallet style), the cylinder escapement, the Brocot style, the pin-lever (Roskoff style) and the lever (club tooth) escapements.

Instructor: Jerry Faier, CMC21, FAWCI

Watchmaking

Essential Practices of Water-Resistance Testing (8 a.m. - 12 p.m.)

In this hands-on class, AWCI Instructor, Tom Schomaker, will demonstrate the Standard Operating Procedure for testing water resistance. He will demonstrate the proper techniques and discuss the working principles for the most popular test equipment on the market from brands like Roxer, Witschi, and Greiner.

Instructor: Tom Schomaker, CMW21

Workshop Practices for the Watchmaker or Clockmaker (1-3 p.m.)

For many years Kari Halme has been designing workshops for watchmakers and helping them improve their workflow. He has visited hundreds of different workshops and has seen the good, the bad, and the ugly. In this presentation, Kari shares ideas which will help you improve the efficiency of your workshop, work faster and better, and improve your bottom line.

Presenter: Kari Halme

3D Printing in Horology (3-5 p.m.)

As vice president of the Horological Society of New York and a technical editor for *HODINKEE*, Nicholas Manousos has been exploring 3D printing in the world of horology for many years. He has constructed a 10X scale model of a coaxial escapement tourbillon and will be demonstrating how 3D printing is impacting the world of horology.

Presenter: Nicholas Manousos

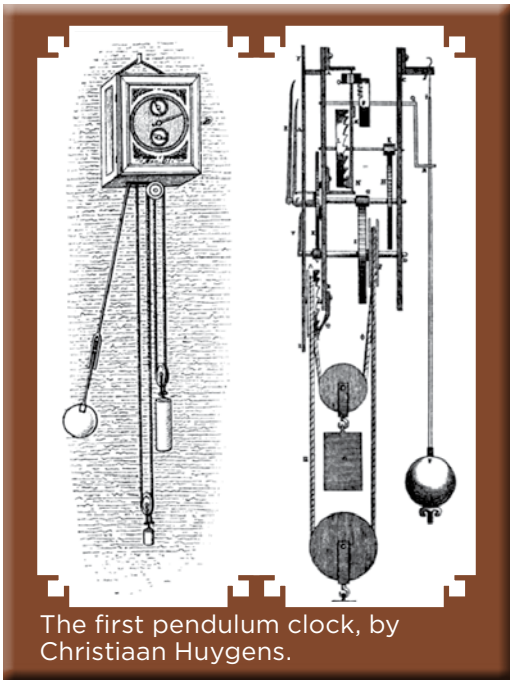
ISOCHRONISM

By Jack Kurdzionak, CW21, FAWCI

Many years ago, I was being interviewed by the feature writer of a local newspaper who was writing an article about our watch repair shop. After he went through the usual routine of questions about our business, he asked, "What is the greatest problem you encounter as a watchmaker?" I thought about it for a moment and then answered, "Isochronism." The writer politely smiled but looked confused. After I followed up with a brief explanation, he completed the interview and went on his way.

Just about every watch repair textbook addresses isochronism—what it is and how to achieve it. The dictionary defines isochronism as "characterized by or occurring at equal intervals of time." This definition applies to any event that takes precisely the same amount of time. Such events include the time needed for one vibration of a cesium atom, a quartz crystal, a tuning fork, or the balance wheel in a watch. All of these events are isochronous within certain limits but none are perfectly isochronous. Even the cesium atom clock has an uncertainty of a single second in several million years. Since watchmakers need to deal with watches regulated by quartz crystals and balance wheels, and in light of our comparatively short life span, we are more concerned with seconds per day rather than seconds per millennia. For just less than a score of years, watch manufacturers used tuning forks as a time standard in wristwatches, but that ended abruptly with the advent of low-cost quartz watches in the late 1970s. Because those tuning fork watches are mostly regarded as historical artifacts with relatively few in daily use, I will confine the focus of this article to watches using balance wheels or quartz crystals as their time standard.

The vast majority of analog wristwatches produced today use a 32kh quartz crystal as their time base. Depending upon the design of the circuitry and the stability of the quartz crystal in these timepieces, they can maintain accuracy within a minute a month to better than a minute per year. They are essentially go/no go timekeepers. When their mechanical components are in good running order, they will keep time to within their design specifications. Each impulse from the motor drive coil results in a measured movement of the display hands. When there is an intermittent obstruction in the mechanics of the display, the watch will appear to lose time because some of the impulses do not consistently drive the mechanical display. If there is a total obstruction in the display mechanics, the display hands will not advance at all. Even when these watches are losing time or entirely stopped, the electronic circuitry can be functioning perfectly but the mechanical portion is not following the impulses from the circuit. Repair of these movements involves restoring the mechanical component to its factory-new condition so that it will consistently advance the hands each time it receives an impulse. These watches cannot be regulated faster or slower. The quartz crystal time base is factory set and not alterable. "It is what it is," as the saying goes.



The first pendulum clock, by Christiaan Huygens.

Henry Frystak, the well-known instructor who taught Accutron repair to thousands of watchmakers in the 1970s, had a simple definition of a mechanical watch. He called them tick-tock watches as contrasted to electronic timekeepers. Tick-tock watches, controlled by a balance wheel and detached lever escapement, are the ones that require a high degree of skill on the part of the watchmakers who service them. They are unlike quartz analog watches in that their timekeeping performance is highly dependent upon the skill of the watchmaker servicing the movement. The quartz analog movement will be returned to its original

Maintenance of the Greiner Vibrograph ACS 900

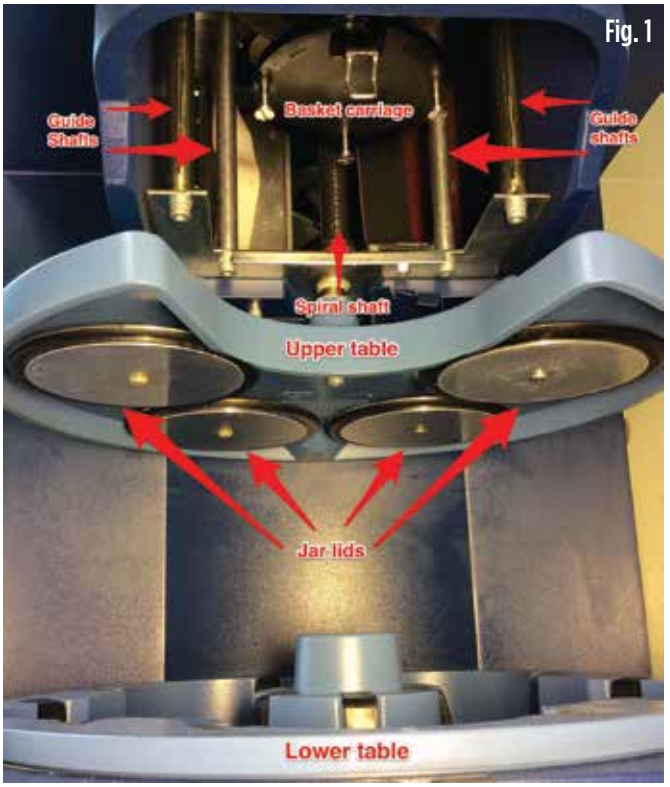


By Sergio Berrios, CW21

I first thought of writing a shop maintenance column when I discovered a problem with the Greiner Vibrograph ACS 900. I was opening up the shop and starting all the equipment up as I do every morning when I heard a loud sound in the cleaning room. At the time I couldn't really decipher what happened since there were a couple pieces of equipment in there and the event had already occurred. The following day I went through the same routine, but this time I waited in the cleaning room after starting up all the equipment. I was amazed to find a couple of the jars containing the rinse solution had stuck to their corresponding lids. After sharing this experience with some of my peers I realized this was not just some freak of nature occurrence: others had fared significantly worse with a jar breaking from the fall. I knew Jules Borel & Co. distributes this machine so I contacted Kyle Woolworth, whom I had met at AWCI's annual convention. Kyle is Jules Borel's tool specialist. He was pleased to aid in gathering maintenance procedures from Greiner Vibrograf and Richard Wong, of Electronic Instrument Service. In this article I will be covering lubrication, general cleaning, minor adjustments, and proper basket loading.

LUBRICATION

The ACS has a spiral shaft and four guide shafts on which the motor carriage travels up and down. The four guide shafts are readily accessible, surrounding the basket carriage assembly where the cleaning baskets attach. The spiral shaft is a little harder to reach, directly centered behind the basket carriage assembly. My machine in particular was making a slight noise along the guide shafts due to insufficient grease. First, the machine needs to be turned on and all the jars should be removed, as if you were replacing the solutions. This will raise the carriage and expose the lubrication points, Figure 1. A small amount of white lithium grease should be applied to the shafts by means of an acid brush. The brush allows you to extend your reach to the spiral shaft and provides more control. Next, press the exit button, which will lower the carriage and spread the grease. These steps should be done several times, making sure the amounts applied are small, so there isn't an excessive amount collecting on any of the shafts.



GENERAL CLEANING

Jar Lids

The jar lids can be found on the underside of the upper table. This table also rises with the motor carriage when the machine is placed in the loading position as previously discussed. The four lids are exposed once the jars are removed and are comprised of several parts, including a spring, upper lid, rubber disc, lower lid, and attachment hardware. In order to remove them for cleaning, you will need a stubby Phillips-head screwdriver and a 5mm metric Allen key. If you don't have a stubby Phillips-head screwdriver, you will need to rotate the base of the lower table around using the hole for the ultrasonic cleaning tank (position 1) to allow more clearance for a longer screwdriver, being careful not

A Faulty Oscillator?

By Dale LaDue, CMW21

I received a watch from a watchmaker who stated that it was running fast, well beyond the regulator's ability to slow the oscillator. He was perplexed because the oscillator was vibrating at 21,600 vph (vibrations per hour) according to his timing machine. I sent an explanation about how I solved this perplexing little dilemma. My note to him follows.

Ray, are you ready for this explanation? Here we go. First of all, also according to my timing machine, the watch's balance is vibrating perfectly at 21,600 vph.

After approximately 18 hours, the watch had gained 38 minutes with no evidence of rebanking! Now, 21,600 vph divided by 60 (minutes) = 360 (vibrations per minute), and 360 vpm divided by 60 (seconds) = 6 vps (vibrations per second).

38 minutes (x 60 seconds) = 2,280 seconds. 2,280 (seconds) divided by 18 hours = 126.7 seconds per hour. The watch is gaining 126.7 seconds every hour.

6 vps multiplied by 126.7 seconds/hour = 760.2 vph. The watch is gaining 760.2 vibrations every hour.

Subtracting 760.2 vph from 21,600 vph = 20,839.8 vph. This is certainly not a common vibration for a modern watch.

Since the oscillator (hairspring and balance) is vibrating correctly at 21,600 vph, the fault lies somewhere else, possibly in the gear train.

To calculate the correct vibrations of the oscillator, the gear-train teeth and pinions need to be counted. The multiple of the gear-train-tooth count divided by the multiple of the pinion count will give the vibrations per hour needed for the oscillator to deliver correct timekeeping.

Center wheel—60 teeth
Third wheel—54 teeth; 7 pinion leaves
Fourth wheel—54 teeth; 6 pinion leaves
Escape wheel—15 teeth; 6 pinion leaves

$$\frac{C \times T \times F \times E(2)}{t \times f \times e} = Vibrations/hour$$

$$\frac{60 \times 54 \times 54 \times 15(2)}{7 \times 6 \times 6} = \frac{5,248,800}{252} = 20,828.6\ vph$$

(The escape wheel teeth are multiplied by two because each tooth receives two impulses.)

20,828.8 vph is close to 20,839.8 vph, indicating that the movement is actually keeping time according to its gear train.

I have to interject at this point to let the reader know that during a second discussion with the watchmaker, he mentioned that initially he had neglected to tell me that the third wheel had been replaced. The watch was a ladies Omega caliber 485 movement, and as noted at "N" in Figure 1, vibrates (oscillates) at 21,600 per hour. The 480 series movements are quite similar as noted by the early caliber 481 shown in Figure 2. The movement shown in Figure 3 is a caliber 484, and the noted "Alternances" (vibrations/oscillations) are 19,800 per hour.



Fig. 1


Fig. 2



Fig. 3

The visual differences between these movements are subtle. Caliber 481 shown in Figure 2 has a cap jewel on the escape wheel upper pivot, and does not have an upper center wheel jewel. It has two screws securing the crown wheel core, and a balance wheel (19,800 vph) with timing screws. The later production caliber 484 still utilizes the 19,800 oscillator. However, it has a screwless balance.

The most obvious superficial differences between caliber 484 and 485 are the crown wheel cores. Two screws are used in calibers 480 through 484 as

How to Replace an Old 1.35 Volts Mercury Cell with a Common 1.5 Volts Alkaline Battery in a Cartier-Imhof Quartz Clock

By Mario Moro

In this article, I will show you how to modify a clock that uses an old mercury cell at 1.35 volts by adapting it to run on the 1.5-volts alkaline battery.

The 1.35-volts mercury cells are no longer produced due to environmental and health concerns. They were banned in the European Union in 1991 (Council Directive 91/157/EEC of 18 March 1991—also known as the Battery Directive). In 1996 the United States Congress passed the Mercury-Containing and Rechargeable Battery Management Act, prohibiting the sale of mercury cells. Consequently, all the older electrical equipment such as cameras, electro-medical tools, and clocks can no longer be used.

The new silver-oxide and alkaline cells have a 1.5 volts voltage, and direct connection would destroy electrical equipment. Hence, it is necessary to lower the voltage of a new alkaline battery from 1.5 volts to approximately 1.35 volts.

Another thing that we must address is the fact that mercury cells are voltage constant for the cell's entire life, but the alkaline battery's voltage decreases during its discharge. To overcome this problem we must use a "larger" alkaline battery, which means a battery with more ampere-hours and, hence, more capacity.

To lower the voltage level we have two options: use a resistor or a diode. The use of a resistor is applicable only if we know the circuit current consumption to correctly size the resistor value. To do this, we would need a current generator connected with the circuit via an ammeter. The diode is easier to use because the junction voltage drop value is approximately 0.3 volts for a germanium diode and 0.2 volts for a Schottky diode.

The silicon diodes have a junction voltage drop value of 0.7 volts. That is too big of a drop to use in this case. The junction voltage drop also varies for every single diode, so we must carefully select the right germanium or Schottky diode.

As an alternative to a germanium or Schottky diode, you can use a base-emitter junction of a germanium transistor that acts like a diode.

Now let's leave the theory and go into the practice

We have a very beautiful Cartier-Imhof desktop quartz clock with monthly and daily calendars, 24-hour dial, and moon phases displayed. It uses the old 1.35-volts mercury cell, so we will modify it in a conservative and reversible way to use the new 1.5-volts alkaline battery.

The materials used:

- 1.5-volts alkaline battery of adequate capacity, such as A, AA, or N3
- battery holder for the battery type chosen
- germanium or Schottky diode or transistor with junction voltage drop of 0.2–0.3 volts
- some wire and solder

First we must clean and overhaul the clock movement and ensure that the circuit is functional. Then we must find the diode with the right voltage drop value from the stock of germanium diodes.

When we have all the material on a breadboard for testing, we can make a sample circuit with voltmeter across the clock, Figure 1:

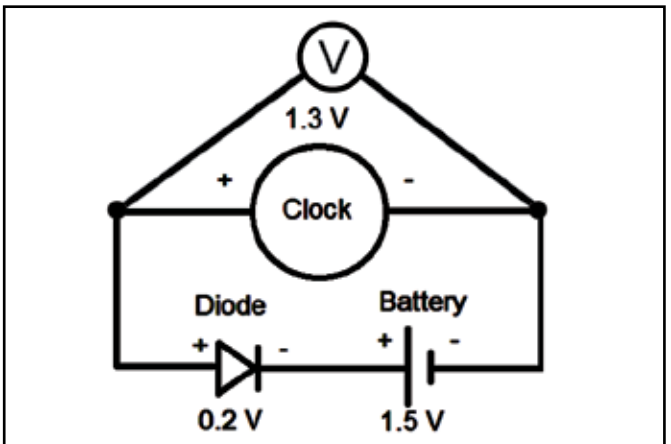


Fig. 1. Sample Circuit

The diode must be installed exactly as shown in Figures 1 and 2 with proper polarity used; otherwise the clock will not run.

How Long Do Watch Pivots Last?

By Wesley Simmons

How long do pivots last in a watch? This is a tricky question to answer. Pivots do not wear out within a set amount of time. There are many contributing factors that lead to pivot wear. There are also factors that prevent pivot wear. In this article I will go over some of these factors. Since I am not a clockmaker, I will be covering this topic for watches only.

We, of course, check pivots by performing side shake checks. However, this should not be where you stop your pivot checks. You must then look at each one with at least a 5-power loupe and check for wear or burrs. I prefer to use a 10-power loupe and/or a microscope. Even under high magnification it can be difficult to see wear. This is why using your brass tweezers to gently feel up and down the pivot is best. This will allow you to feel any wear. If you can't feel it, neither can the watch.

So now that we have checked our pivots and possibly found some wear, our customers may ask why pivots wear. Or they may ask how fast pivots wear. To best inform our customer, we need to tell them that pivots do not have a certain expiration date. Yes, given enough time, any pivot will wear enough to either need to be fixed or replaced. We must know there are many things that factor into how fast a pivot wears. Our customers must know this as well.

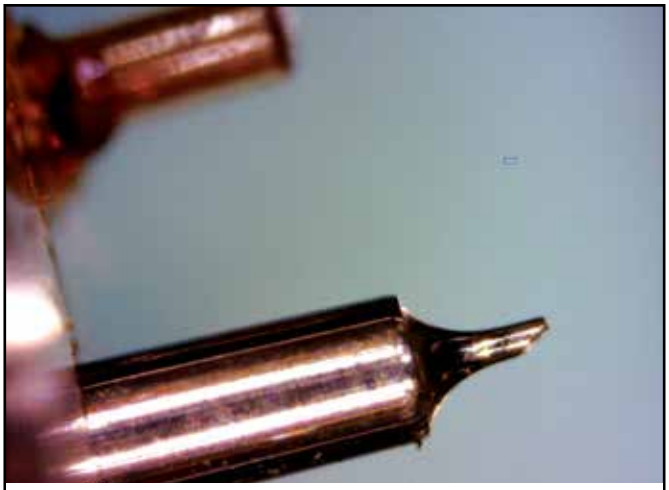
The first and foremost thing we will discuss is, of course, service intervals. An average mechanical watch needs a service about every four to six years.* The Omega customer-service/watch-care web page says, "As a general rule, a watch should be serviced every 4 to 5 years, depending on the conditions in which it is used." This varies depending on whether the watch is dust-resistant, water-resistant, or not resistant to anything—much like a pocket watch. The lower the resistance level, the more debris and dirt can get into the watch and the faster lubricants can become contaminated. A pivot starts to wear more quickly when there is an absence of oil or the oil has contaminants in it. If there is no oil, the pivot is running against the bearing surface of the whole jewel instead of on a thin film of oil. If the oil has contaminants, the pieces of debris will wedge themselves between the bearing surface of the whole jewel and the bearing surface of the pivot. This debris will cut into the softer of the two surfaces—in this case, the bearing surface of the pivot. A proper service will fix either of these problems. If done regularly, it will greatly improve the lifespan of the pivot.



This pivot shows wear.
Photo courtesy of Jamie Dolinar

The second thing we need to discuss is what quality of material is in the watch. Each watch brand uses different materials for different reasons. One reason for cheaper steel (softer steel, usually with a burnished hardened outer layer) might be to keep cost down for easy replacement of gears or to make the watch more affordable as a whole. The obvious reason for higher-quality steel (hardened steel) is for better continuous functionality. In other words, they will be harder to wear out but can also be modified to work properly if they do become worn.

The type of oil used also contributes to pivot wear. If you were to put Moebius 9010 where you should have put Moebius 1300, you would take away the proper cushion of oil needed. Moebius



This pivot is chipped. The damage was probably due to watchmaker error. The pivot was probably not all the way in the jewel hole when the bridge was screwed in.



This pivot shows light oxidation that cannot be felt with tweezers.

9010, being a thinner oil than 1300, will allow the watch to have greater amplitude. This, however, is not a good thing. The bearing surfaces that called for heavier oil needed it because it is a slower-moving, higher-torque pivot. Higher torque means you need a heavier oil to prevent the two bearing surfaces from scraping against each other. If the wrong oil is used, then a pivot (though just serviced) will wear more quickly. You can read this information and more in *The Theory of Horology*, chapter 13 and in "The Practical Guide to Modern Watch Oiling" by Stanley McMahan.

One of the biggest contributors to wear is out of the watchmaker's hands—service intervals. It is important to share what we know with our customers. The better informed they are, the easier our jobs are.

The jewels that come in contact with metal can wear as well. It is a bit trickier to wear a jewel. The average jewel is made out of ruby. A ruby is always harder than steel; consequently, a pivot or escape-wheel tooth will wear rather than the jewel. The exception is diamantine. Diamantine is used to get a highly polished surface in steel parts. This includes pivots and the impulse surfaces of the escape wheel. If diamantine was not fully removed from these surfaces, then it will wear down ruby jewels. This is because diamonds are harder than rubies.

The jewel itself could cause a pivot to wear. If the jewel has a chip or a crack, it will act as a saw blade and cut into the steel. Even with the presence of proper lubrication, a flawed jewel will cause pivots to wear more quickly. It is best to put a new jewel in when a jewel has a chip or a crack in it. As some jewels are burnished in place, this is not always an easy task, so be sure to charge according to how long the task will take you.

The last cause of pivot wear that I will cover is oxidation. This might be the one cause that most watchmakers don't think of in depth. Of course oxidation of the pivot is bad, as it will cause more friction and effectively kill amplitude. But it will also slowly take the bits of oxidation off, opening up a new layer to oxidize just to repeat the process until there is little left. A pivot is not just highly polished to reduce friction and reduce surface tension. A highly polished pivot makes oil cling to itself better than a roughly



The pivot on the left is a new generic part. The pivot on the right is a genuine part from a high-end brand. Notice the difference in quality.

ELM Trust Report
June 2015 Meeting

Your ELM Trust trustees met at AWCI in Harrison, Ohio, on June 26, 27, and 28. In attendance were Brad Wellmann, Dennis Warner, and Jack Kurdzionak assisted by Jordan Ficklin. We had a full agenda and were able to get a considerable number of tasks accomplished during those three days. The following topics were discussed:

a. Our collective vision for the focus of our collection of horological items

b. Joining a professional museum organization

c. Seeking museum accreditation

d. Trustee qualifications

We have a large collection of books in our library. Our discussion about that collection included:

a. Our vision for that library

b. Seeking accreditation for the library

c. Joining a professional library organization

For many years we have kept paper records of our physical inventory. That system has become cumbersome and difficult to maintain. We have taken two steps to bring that old paper system up to date.

a. Brad Wellmann, with the aid of a student volunteer, has confirmed the physical presence of each book in our library. In addition, they entered the books into an electronic database.

b. We have purchased a custom-designed program to inventory all of the items in our collection. That includes watches, clocks, tools, and numerous other horological items.

For several months, Maureen Seals of the AWCI office staff has been spending time each week transferring all of our existing paper records into the new inventory program's database. That task is about two-thirds complete.

Last year, the Trust received a substantial donation of over 300 antique watches plus several boxes of watchmaker's tools and supplies. The trustees examined the entire donation and confirmed the presence of each item listed on the donor's manifest. Each high-value watch was photographed, and those photos along with the description of each item was entered into the new program.

I want to express my deep appreciation to Dennis Warner, Brad Wellmann, and Jordan Ficklin for their dedication and hard work during our three-day meeting. Jordan volunteered to come in Saturday and work all day (11 hours) with us. Brad and Dennis not only volunteered their time, but they generously paid their own expenses for travel, lodging, and meals.

Report submitted by Jack Kurdzionak
Chair, ELM Trust



Management Changes at the Henri Stern Watch Agency

By Aaron Recksiek, CW21

Patek Philippe's after-sales service center and sole goods distributor, located in Rockefeller Center in New York City, will be getting a new technical manager to oversee the 19 watchmakers and roughly 10,000 annual watch repairs sent in from around the nation. The Henri Stern Watch Agency is named after the son of Charles Stern, who purchased Patek Philippe in 1932. Henri Stern ran the original US distribution of Patek Philippe watches before taking over as president, sole owner, and managing director in Geneva in 1958. HSWA operates as a subsidiary of Patek Philippe SA.

Long-time Head Watchmaker and Director of Technical Services, Laurent Junod, will be moving on to another yet-to-be-announced role within the company. Junod, a native of Vallée de Joux in Switzerland, has served the company in New York for the last 27 years.

The post will be filled by David A. Bonilla from Sunset Park, Brooklyn, who is a 2007 graduate of the WOSTEP-sanctioned Nicolas G. Hayek Watchmaking School. After graduating, Bonilla worked for the Swatch Group and an Omega boutique on Fifth Avenue for nearly four years before landing with Patek Philippe in 2010. Bonilla is in his 30s and considered fairly young in the master watchmaking community. He has achieved Level-3 Watchmaker status with Patek Philippe in the five years he has been there.

In a statement to the press, Larry Pettinelli, president of Patek Philippe USA, said: "We are very pleased to have David Bonilla's talents at HSWA. He is a highly motivated and talented watchmaker, with all the tools to become a great leader within the workshop. We will be excited to watch him develop in his new role."



The offices and workshops of The Henri Stern Watch Agency are housed at 45 Rockefeller Center in New York City. In 2013 they expanded their space to 33,000 square feet that includes a state-of-the art workshop and administrative offices.

Photo by Jean-Christophe BENOIST

Sources:

www.jckonline.com/2015/07/07/david-bonilla-promoted-henri-stern-watch-agency

www.collectiblewatcheshub.info/bonilla-promoted-at-henri-stern-watch-agency

The Time Machine

A GLANCE AT THE PAST TO HELP SHAPE THE FUTURE

There's More Than One Way . . .

By Jordan P. Ficklin, CW21



Scholastically Speaking

Horological Times 1985

By Alice Carpenter, CMW, CEWS

My father always told me there were three ways to do things—the right way, the wrong way, and his way. He was always looking for a better, more efficient way of doing things. He was successful on numerous occasions, but more to the point, all his children grew up looking for better ways to do things.

I have stressed my father's theory to my students many times. I have suggested that they observe the way a man has his bench set up, and how he does things every time they are in a watch repair or jewelry shop. That man may have found a better way to do something that I can adapt to my own shop or work habits. I have never visited a watchmaking shop from which I didn't learn something.

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I was both delighted and a little surprised when one of my students told me about a visit to a shop, and being shown how to stake a staff to the balance wheel with the staking tool suspended instead of sitting on the bench. I really don't know why I should have been surprised—this was a very bright student who is going to be a successful watchmaker. I was delighted to find that something I had said struck home. The staking tool should be held up from the bench with the little finger and the ring finger encircling the curved neck of the tool. Then the punch should be tapped lightly with the staking hammer held in the other hand. It seems that this helps prevent the need to poise a balance wheel unless it was very badly out of poise to begin with. I was a little dubious at first, but I tried it, and it works!

I think one of the most original ideas for preventing the loss of a flyaway click spring came from another of my students. He took a clear plastic cup and held a lighted cigarette to one side, burning a small, round hole that was just the right size to accommodate a pair of tweezers. He could maneuver the tweezers, dislodge the spring, and even though it flew, it remained inside the cup.

These solutions require a certain amount of thought. Unfortunately, not everyone is blessed with the ability to think creatively as his natural birthright. After a particularly trying day when my students were excessively mentally inactive, I tried a little game with them in an effort to stimulate their thought processes. I got a brown paper bag and put ten small objects in it. I dumped the objects into a drawer and gave the students ten seconds to study them. At this time, I covered the drawer. Then each student made a list of what he thought he saw. The results were amazing. Most of the students could name only five of the ten objects correctly.

We played this game frequently, and their powers of observation improved greatly. In fact, they look forward to testing themselves now to see what progress they have made. (When the students get good at this, I ask them to name not only the objects, but also their color, brand name, or shape.)

Sit on Your Hands: Horology Q&A

Q A customer comes into your shop and complains about the horrible battery-replacement service he or she got at a local jeweler. What is your response to the customer? Knowing that someone inexperienced was inside this watch, what is your take-in procedure?

ANSWERS

Why did you come here second? If it was to save cost, it obviously didn't work. If it was because you were unaware of me, how did you find me?

—Darryn Clark

I try my best not to insult the store that did the previous battery change. I feel those who bring down others are not that great themselves.

I instead let the customer know how trained our staff is. I then spell out how we do a proper battery change, explaining battery tests as well as consumption tests. I wrap up this topic by saying that our batteries come with a warranty.

If the customer wants me to change the battery after I state our pricing, then I correctly take the case back off using the appropriate tool. I then inspect the movement with a 4-power loupe for any damage caused by the previous battery change. If I find any marks, I show the customer if he or she is waiting. If he or she dropped the watch off, I take photos of my findings. Then I test the battery voltage. I continue my tests by checking consumption, lower working voltage, and coil resistance.

If all tests are okay, I put a battery in the watch. If the watch runs, I set it to the right time and date. If it has a chronograph feature, I calibrate it. Lastly, I pressure test the watch to make sure it is water resistant.

If it passes all my tests and runs, I bring the watch, with receipts showing all the test results, out to the customer. I answer any questions as well as I can.

The most important thing is that the customer walks away with more knowledge about the watch and feels that the level of service was high. It's just as important that the customer feels welcome and sees that you, the watchmaker, are knowledgeable and willing to help.

—Wesley Simmons

If a customer brings in someone else's mistake, I might mention that I get a lot of work from other people's battery changes, but invective breeds invective, so I am especially keen to avoid impugning anyone. There are some customers who want to embroil watchmakers in a tragic soap opera, so when they try to, I become visibly more formal in manner than usual.

Practically speaking, I treat it like any other repair.

—Dave Stites

After greeting the customer, I ask how I may assist him or her today. The customer tells me the dilemma about poor battery replacement elsewhere. I genuinely apologize for the poor experience. Then, with a smile, I offer my professional assistance. I assess the situation, and depending on my findings, I either remedy the situation at no charge or offer the solution for a nominal fee. I then thank the customer for having confidence in our shop and ask the customer to return with any further repairs in the future. I hand the customer my business card, wish him or her a good day, and, again, express my hope to see this customer again for any watch sales and/or service. Take-in procedure includes getting the customer's name and phone in case the watch needs to be left for several hours or a couple days. This rarely happens but one never knows.

I never disparage or gossip about any other store or competitor. That is just plain rude and selfish. Plus, negativity might bite me in the you-know-what!

— Richard Mazza

The question is a great one and highlights a situation I have come across many times over the years.

My initial response to this customer would be to take a sympathetic approach to the situation, especially if it is a fine watch that has been badly mauled. Depending on the degree of the customer's distress, I would either attend to this job immediately

Question:

I recently picked up a British pocket watch. Any information on the maker and approximate dates would be appreciated. The dust cover is engraved:

Patent Lever
Full Jewelled
Hands No. 12761I
Th French
London

The case is stamped 12751

Thanks,

Keith Seltzer

Answer:

Keith,

Let's look at your watch. The dust cover tells us that your watch movement has a jeweled lever escapement (Patent Lever). The train wheels, at least the third, fourth, and escape wheel pivots run in jeweled bearings (Full Jewelled), and the No. 12761 is the watch's serial number. The hands are key set through the hole in the center of the dust cover.

Your watch uses a Lépine-style bar movement made by Japy near Besancon, France, Édouard Louis Frédéric Japy/Frères, and other ebauche (rough movement) makers in Switzerland. This style of movement is named after its inventor, Jean-Antoine Lépine (1720-1814), a prominent French watchmaker.

The late Adolphe Chapiro of Gif-sur-Yvette, France, classified the various generations of Lépine-style movements into six calibers, starting with the Original Calibre used by Lépine himself between 1765 and 1795 and by other makers until 1815. Your movement would be classified as a Calibre V, a movement used from about 1850 until the introduction of stem winding in ordinary watches about 1872.

The ebauches, or rough movements, from which yours came were supplied to various watch finishers or watchmakers by specialized ebauche factories in France and Switzerland, the largest of which was the Japy factory near Besancon. Japy adopted the Lépine calibers for his and the world's first machine-produced watches.

The dust cover suggests that your watch was made by TH French in London. There were several makers named Thomas or T. French in England and Wales during the 18th and 19th centuries, but none are listed as having been in London. Given the Swiss penchant at the time for using well-known and/or familiar names and locations on their watches, I would say that your watch was made by an unknown finisher in Switzerland in the mid-19th century, using a familiar maker's name on the inside cover to make the buyer think that he was getting a quality watch made by a known London watchmaker.

Sincerely,

David



The dial of the watch.



The watch uses a Lépine-style bar movement made by Japy near Besancon, France.



The hands are key set through the hole in the center of the dust cover.

David Christianson is a graduate of Purdue University, the Kansas City School of Watchmaking, the Gemological Institute of America, and is an internationally known horological historian.

Watchmakers & Clockmakers

Have you worked on an unusual or historic timepiece that fascinated you and you wanted to know more about it?

Where was it made?
How old is it?

Have customers asked you questions about the history of their timepiece that you were unable to answer?

David Christianson, CMW21, FBHI, FAWI can answer your questions.



Send your question along with clear, high-resolution photos to Member Services

memserv@awci.com

or mail them to

Member Coordinator
701 Enterprise Drive
Harrison, OH 45030

Minnesota Clockmakers Guild (MCG)

The MCG meeting took place on Thursday, August 6, at the Hopkins Pavilion in Hopkins, Minnesota. For the August program MCG members brought in novelty clocks to share and discuss. Donald M. Davies gave a very interesting program on "Precision Pendulums" covering the experimental astronomical regulator clock built by Evan Edwards. The door prize was *The Modern Clock* by Ward L. Goodrich, donated by Colleen Mayer and won by Ivy Booth.

For Show and Tell, Terry Jones explained how he made molds to shape the veneer on curves of the wood case for a school clock. Dan Wagers shared two clocks built by George Jones, one very large and a smaller version regulator.

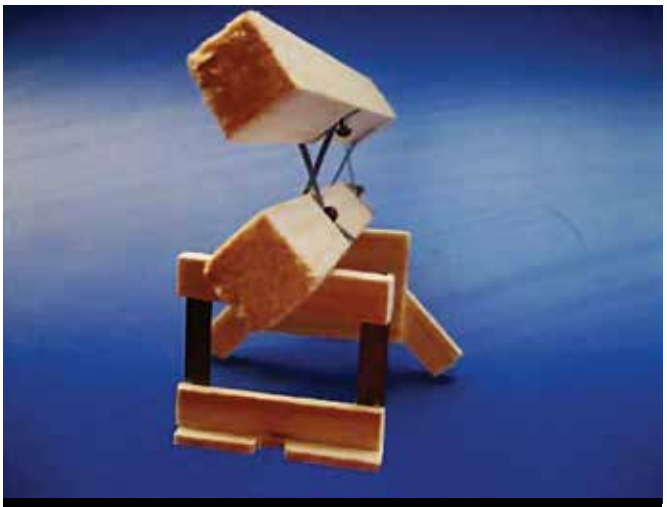
The Minnesota Woodworkers Guild is offering a special order of wooden clock kits by Jeff Schierenbeck. Check the website www.wooden-gear-clocks.com for models available.

Future MCG Meetings/Topics in 2015

September 3 – TBD
October 1, 2015 – Carlton College visit with Mark Zack
November 5, 2015 – Replacing Veneer with Terry Jones

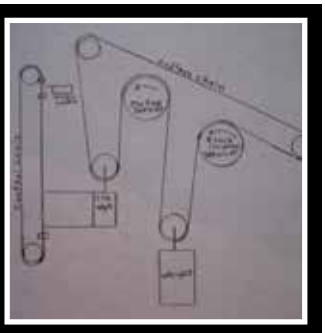
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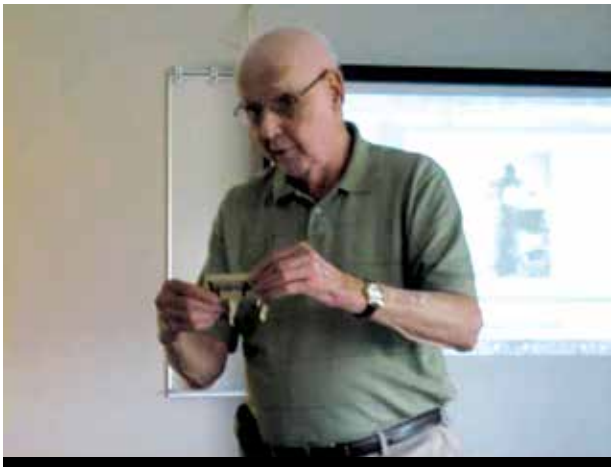


Unique escapement with double diagonally crossed metal straps and ridged mounted pallets and pendulum.





Wall-mounted regulator with Plexiglas cover to reduce air currents around the pendulum and auto winder layout with maintaining power for long run accuracy. Two years running with 22 seconds error-slow.



Donald M. Davies explaining the unique escapement used by Evan Edwards in his precision regulator tests.



Terry Jones explained how he made molds to shape the veneer on curves of the wood case for his school clock.

AWCI Welcomes New Members

Ted William Brown	IL	Tony Mayfield	MO
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John Doolan	Australia	Jason L. Powers	TX
Otto Gibbons	NC	Stuart Stakoff	CT
Eric Gonzalez	TX	Glen Stephenson	Australia
Jerry Gull	IA	Phillip Stewart	IL
Charles Irving	CT	Celeste Wong	OR
Kalin Manchev	NV		

Congratulations!

to our members who have recently passed the CW21 exam

Curtis A. Norton	AL
Francis Zape	NC

In Memoriam

George Kiser TX



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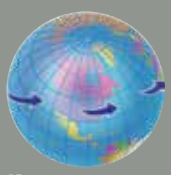
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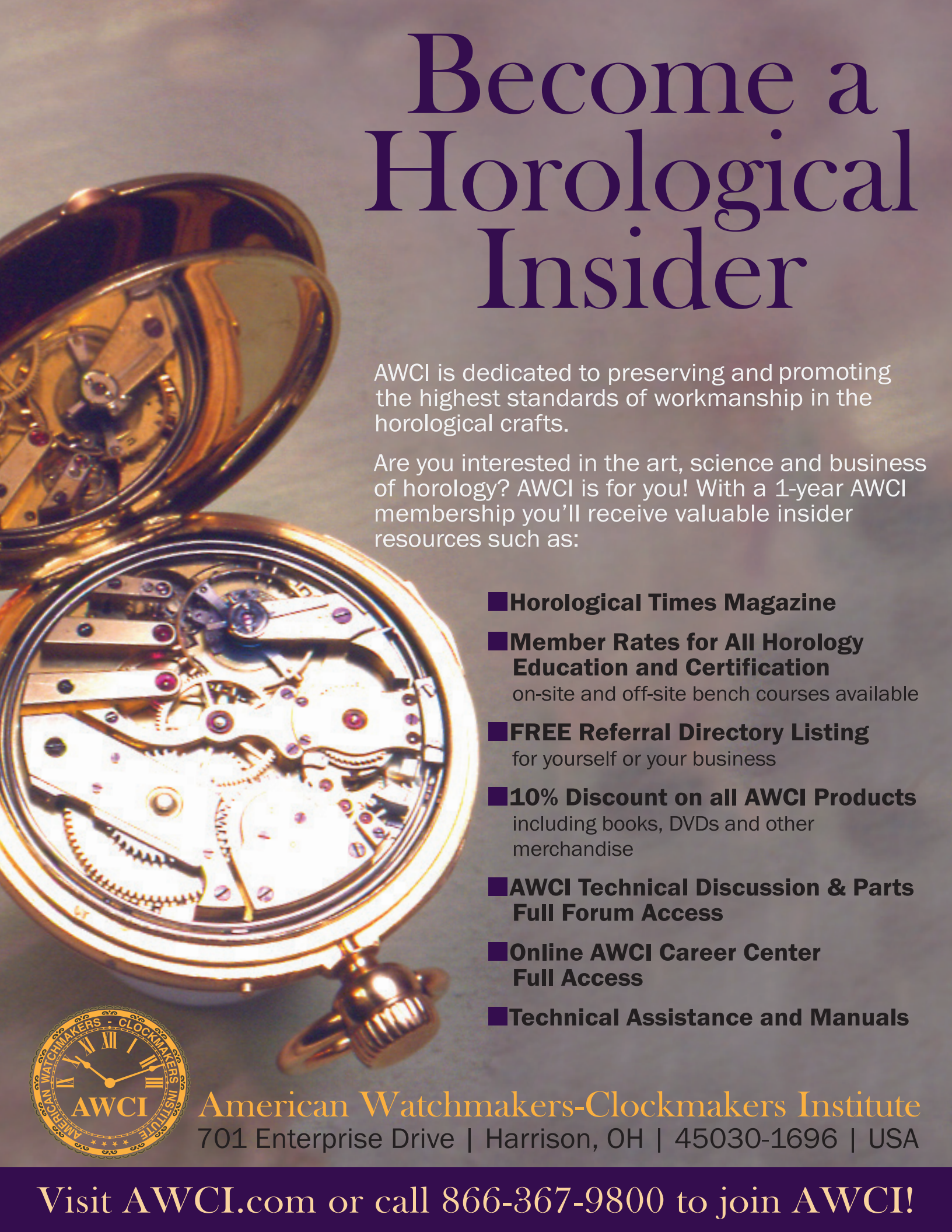
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