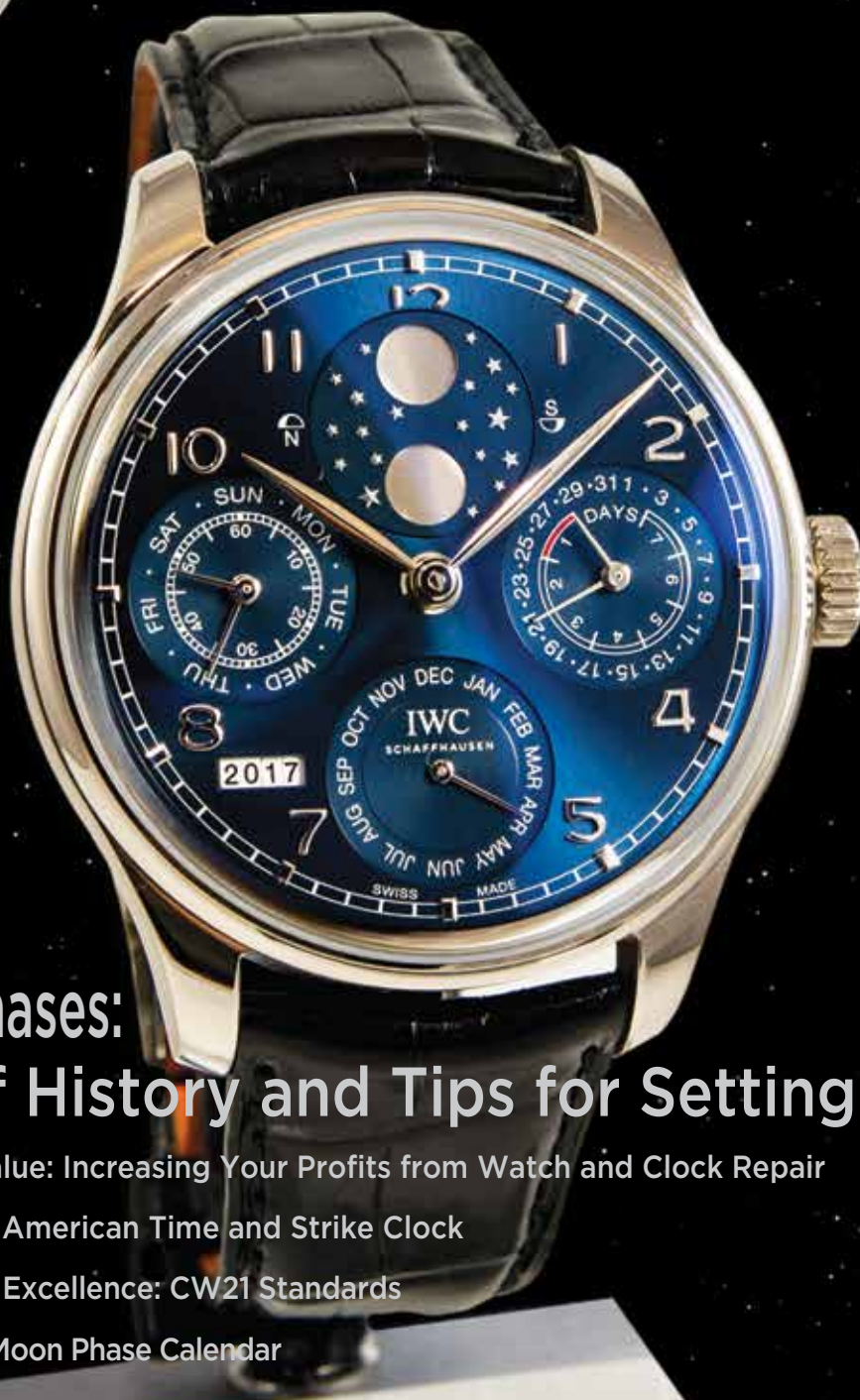


HOROLOGICAL TIMES™

January 2017
SETTING SERVICE STANDARDS AND EDUCATING THE HOROLOGICAL COMMUNITY



AMERICAN WATCHMAKERS-
CLOCKMAKERS INSTITUTE

Moon Phases: A Brief History and Tips for Setting

Know Your Value: Increasing Your Profits from Watch and Clock Repair

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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
fwhite@awci.com

I hope you had a great holiday season and a Happy New Year. We begin a new year here at AWCI with all the hopes and expectations that this year will be better than the last. However, last year was good. We accomplished some of our goals, but not all. It was a good year for volunteers to

come forward and work on the many projects we have. So, let's reflect on some of those projects.

The *Horological Times* Committee has helped our editorial team produce a great magazine each month for our membership to enjoy. They aim to include technical articles in both watch and clock repair, as well as industry news and other interesting features. I wonder if you have any idea of the amount of man and woman hours that go into each magazine. The *Horological Times* Committee, made up of volunteers, reviews a large number of articles each month to make sure they meet our standards and practices and are worthy of publishing. With their help and the work of our editorial staff, we get a great product every month.

The Education Committee is now working on hiring a Clock Director and a Chief Examiner. The Clock Director will oversee all work that needs to be done to get the certification of clockmakers on track again. The Chief Examiner will oversee all certifications that AWCI currently does (CW21 and CC21) and certifications we plan for the future (CMW21 and CMC21). We are also working with the National Association of Watch and Clock Collectors (NAWCC) on education for both of our organizations. We will offer technical classes, to them, and they will teach us about horological history and about collecting timepieces. Thanks to all the volunteers who are giving their time to make this committee work.

Our Convention Committee always gives us an excellent convention to attend. This committee never fails to make each one great and lots of fun. Also, we get some first-class speakers to educate us on the most modern timepieces as well as on the basic fundamentals of horology. They spend hours researching the best hotels at the best price

possible for our membership. It not just the hotel rooms but the meeting rooms and meals and a hundred other things that have to be considered. All this is done, for the most part, by a group of volunteers. We look forward to our 2017 convention in Tampa, Florida.

It is the job of the Finance Committee to organize the budget and to come up with a balanced budget. They do a tremendous job of keeping our finances running smoothly, and I am happy to say we are on good, solid financial footing.

We are fortunate to have a Perpetuation Trust Fund, which is handled by a committee of three trustees, and the president and treasurer of AWCI head up and control this fund. In our Governing Documents, there are guidelines that control how much of this fund can be drawn out at one time. It is set up to keep AWCI going for a long time, through the good and bad times, so there will be an AWCI for future generations.

The Nominating Committee is in place to select new members for the Board of Directors. If you would like to run for the Board of Directors, which is a voluntary position, please get in touch with the chairman of this committee, Drew Zimmerman.

The ELM Trust is for the purpose of helping to fund education and AWCI's library and museum. This is a very hard-working group, which gives of their time very freely for the betterment of AWCI.

Our Ethics Committee handles complaints about various issues that arise between a member and a customer or persons misrepresenting themselves as members of AWCI when, in fact, they are not.

There are two other committees, the Honor and Awards Committee and the Marketing Committee. They both serve vital roles in the work we do for our members.

"Thank you"—just two small words that are not sufficient to express my appreciation for the tireless effort that these volunteers give to the horological community. Without these people giving their time, energy, and money, we would not have the strong organization that we have today. If you are not already a member of one of these committees, then step up and volunteer. It is very rewarding. 🌀

a message from the executive director

JORDAN P. FICKLIN, CW21



This month's magazine is a special one. To start out 2017, we decided to send our magazine to 5,000 professionals working in the horological crafts. We truly believe that our magazine is one of our flagship products as an institution and that its quality has greatly improved over the past three years. If this is your first time reading *Horological Times*, or if it has been several years since you read it, we want you to know that this issue is characteristic of the kind of quality we produce month after month, and we hope you enjoy it. Our editorial team works tirelessly to seek out the highest-quality articles covering technical topics for both watchmakers and clockmakers, as well as news from around the industry. Many of you keep every single issue of *Horological Times* as a reference. Therefore, we mail *Horological Times* in a large white envelope so the cover does not get damaged in transit. Inside the envelope this month, is a 2017 calendar indicating the phases of the moon and a list of our classes and events for this year. We hope you appreciate its beauty and find it useful in your workshop. (Read more about the history and usefulness of moon phase indicators on page 10.)

Our magazine is one of the many benefits of being a member of AWCI. Our mission is: Setting service standards and educating the horological community. As a member of AWCI, you benefit from your association with these high standards, and you have access to many different ways to increase your technical knowledge and profitability. In addition to *Horological Times*, members have access to our library and museum, receive discounts on books and classes, and participate in a large network of professionals where they can get technical information or find that elusive replacement part. Members are included in our online "Find a Professional" directory, which is visited approximately 17,000 times a year by more than

13,000 consumers who are looking for someone to service their watch or clock. As a member, your vote helps shape the future of the institute and the industry as a whole as your Board of Directors works with the Industry Advisory Board.

So, if you want to receive this wonderful publication every month and partake in these other useful benefits, become a member at www.awci.com/become-a-member or call 513-367-9800.

The newest benefit of being a member is an exciting agreement we made with the

Become a member
to keep receiving
this wonderful
publication and to
partake in our other
benefits.

Horological Society of New York (HSNY) that allows all AWCI members to watch the HSNY lectures without having to travel to New York City. The HSNY has attracted amazing speakers like Francois-Paul Journe, Dr. Demetrios Matsakis, Michael Friedman, and many more.

Members of AWCI can visit www.awci.com/hsny or www.hs-ny.org to watch the recordings of the HSNY lectures. Each month, as new videos are made available, you will receive an email from AWCI with a link to the new video and the access password. Watch the video from the comfort of your home, on your lunch break, or listen to it while you work. If you do not receive emails from AWCI, contact Maureen Seals, our membership coordinator, who can give you the password upon verification of your membership status.

Professionals looking for a way to give back can volunteer through the AWCI mentor program, by writing articles for *Horological Times*, teaching classes at AWCI or our affiliate chapters, or simply by donating to the ELM Trust, whose mission is to support horological education by maintaining AWCI's library and museum and by supporting AWCI's classroom with tools and training materials.

We want to wish all of you a happy new year and we hope you enjoy this special edition of *Horological Times*. 🌀



Editor's Forum



As Executive Director Jordan Ficklin said in his message, this issue of *Horological Times* is reaching a wider audience than usual. We welcome everyone—whether you're a loyal HT subscriber or totally new to this useful publication. Sit back and enjoy the articles and information HT offers this first month of the new year.

Technical Articles

Every month we cover technical topics for both watchmakers and clockmakers. This month, we have the beginning of a new series by watchmaker/educator Henrik Korpela, principal of Korpela & Hofs Watchmaking Competence Centre in Le Locle, Switzerland. Henrik will walk us through the process his brother, Kaj, used to create his own watch. After you read Henrik's introductory article, you won't want to miss the rest of this series.

For clockmakers, David LaBounty, CMC, BFHI, gives an overview of how to set up an American time and strike clock. David uses the American Connecticut count wheel striking mantel clock as an example.

Business Articles

We realize that technical skills are not all you need to run your business or advance your career, whether you work for yourself or for an employer. Michael Gainey, CC21, shares his ideas

for how you can earn what you are really worth—no more under-valuing your work and making a low income. This is the first in a series of articles Michael will write on this topic. So, stay tuned. You don't want to miss any good business advice.

Industry News

If you don't have time to read several publications or troll the Internet looking for the latest news in the watch and clock industries, then you've come to the right place. Each month we feature stories about what is happening *now* in your profession and how it might affect you. In the past year, we've covered how smartwatches are outselling Swiss watches; news about American watch brands and their conflicts with the Federal Trade Commission; big changes in long-established companies, including some that have gone bankrupt; new inventions; new products that will help you do your job better; and much more.

Regular Columns

Columns that run monthly or bi-monthly include the following: "From the Workshop" by Jack Kurdzionak, CW21, FAWCI, has been running for 20 years and covers almost every aspect of the watchmaking profession; "Watchmaking Excellence: CW21 Standards" uses photographs to illustrate the level of craft expected from all watchmakers, whether they work independently, in a retail store, or in a service center; In "Ask David Christianson," you'll find answers to questions about unusual and historic timepieces. "Sit on Your Hands: Horological Q&A" urges you to think before you act and poses a question for *you*, the reader, to answer. We also occasionally have reviews of newly published horology books as well as "Old-Time Resources"—our insightful reviewer, Daniel Benson, CMW, delves into his library to find out-of-print

books that still speak to watchmakers and clockmakers today.

Inspiration

Each month we feature the story of an American company that is starting to make watches and clocks in the US again. We call it The American Spirit: Making Timepieces Again. We are presenting a totally new feature this month, The CW21 Profile. Now you can see how other CW21s work and be inspired by their workshops and their work ethics.

AWCI News

With HT you can keep up with what other members are doing. We report on the Affiliate Chapters of AWCI, which offer their own educational opportunities and conventions. HT is where you can find the latest news on our upcoming convention (to be held this year in Tampa, Florida). You can also read about members who are running for AWCI's Board of Directors, as well as the outreach that AWCI does: last year members set up at Maker Faires across the country to teach people about the career of watchmaking, and our president and executive director set up a booth at NAWCC's annual convention to meet their members and to strengthen the link between our two organizations. And, of course, you can always learn about AWCI's courses by consulting the Educational Calendar.

Start 2017 off right—subscribe to *Horological Times* or, better yet, become a member of AWCI and receive *Horological Times* every month in addition to all the other benefits you'll receive as a member. Membership is only \$175/year, and that includes 12 issues of *Horological Times*. A subscription to *Horological Times* alone is \$99/year within the US. Go to www.awci.com/become-a-member/ to learn more and become a member.

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.





"I left the quartz course with skills I could immediately apply at work. In a couple days we covered theory, servicing basic quartz movements to chronographs, and testing procedures. Understanding the working principles behind these movements helped me improve my diagnostic skills as well. I would definitely recommend attending this course!"

~Judit Katona

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Increase the quality and quantity of your work and become more profitable with classes from the American Watchmakers-Clockmakers Institute. We offer refresher and advanced courses designed to help you sharpen your skill set and stay current with the latest service techniques.

ARE YOU CERTIFIED?

Invest in yourself by taking your skills to the next level, and becoming a Certified Watchmaker (CW21). Becoming certified demonstrates your high level of expertise to your customers, elevates your store above the competition, and enhances the brands you carry. Start the process today by registering for our 21st Century Standards Course.

Not sure which course to sign up for? Log onto our website and fill out our experience questionnaire or contact us so we can help you find the best course suited to your skill level, expertise, and interests.

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





educational calendar

Prices reflect member's discount! Contact us so we can help you find the best course suited to your skill level, expertise, and interests.

Announcing the New Class Schedule for 2017

Reserve your spot today. Contact Rob McLeod at 866-FOR-AWCI (367-2924), ext. 303.

January

9-10

WATCH 375: 2 CEUs **\$595**
Separate Function Case Course for Rolex Watches

Instructor: Tom Schomaker, CMW21
Red Lion Inn & Suites Tempe, Arizona
Both classes Jan. 9-13, 2017

\$1,495

Learn the standard operating procedures (SOP) for disassembly, service, and re-assembly of Rolex watches featuring the separation of functions bezel including water testing. You will gain hands-on training with the proper tools and with multiple case designs.

January

11-13

WATCH 175S: 3 CEUs **\$1,095**
Case & Bracelet Refinishing (includes polishing kit)

Instructor: Tom Schomaker, CMW21
Red Lion Inn & Suites Tempe, Arizona
Both classes Jan. 9-13, 2017

\$1,495

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.

February

1-3

WATCH 102: **Watchmaking Theory**

Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

\$595

Interested in knowing more about how watches work? This introductory course examines the ins and outs of how watches work with a special focus on practical application, and developing strong troubleshooting skills through understanding the roles and interaction of various watch systems.

February

6-10

WATCH 210: **Quartz & Quartz Chronograph Service Procedures & Diagnostics**

Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

\$1,095

Expand what you know to increase your profit! Quartz watches can be one of the most profitable sectors of your business. This course reviews quartz watch repair and quartz chronographs, including the various important electronic tests, giving you the skills you need to be faster and more consistent at servicing quartz watches.

**February 27–
March 3**

Watch 190: **21st Century Watchmaking Standards**

Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

\$1,095

Evaluate your skillset in this course by exploring the fundamentals of modern mechanical watch repair including cleanliness, lubrication, endshake adjustment, and may include the verification and analysis of escapement function.

March

6-10

WATCH 220: 5 CEUs **\$1,095**
Modern Mechanical Chronograph – ETA 7750

Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

Brush up on your chronograph skills before taking the CW21 Exam with this class on the modern mechanical chronograph. It focuses on the service and adjustment of modern mechanical chronographs, such as the ETA 7750.

March

27-31

WATCH 250: 5 CEUs **\$1,095**
Basic Micromechanics: The Watchmaker's Lathe

Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

Expand your knowledge of micromechanics and learn the fundamentals of the watchmaker's lathe including preparation of cutting tools, how to turn cylinders and tapers, how to drill, and how to cut out balance staffs.



For additional details about specific courses in comprehensive syllabi form, including complete tool lists, visit: <http://www.awci.com/classes>. or contact **Rob McLeod**, Education & Certification Coordinator, at 866-FOR-AWCI (367-2924), x303. For additional calendar events visit: <http://www.awci.com/calendar>.



April
10-14

WATCH 230: **\$1,095**
Balance Staffing & Timing
Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

Build on what you know in this course by investigating 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, adjusting the balance staff, and removing the balance staff from Glucydur balances with the Horia tool.

May
8-12

WATCH 200: **\$1,095**
Modern Automatic Wristwatches
Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

Become the go-to watchmaker for modern automatics in your area by learning the fundamentals of mechanical automatic watch repair that are most prevalent in today's market. In this class you'll investigate how to perform the various components, cleaning, assembling, adjustments, dialing, and casing.

May
15-19

WATCH 175: **5 CEUs** **\$1,350**
Case & Bracelet Refinishing
(includes polishing kit)
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.

June
12-16

WATCH 240: **\$1,095**
Servicing the Lever Escapement
Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

This intense five-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.

July
10-14

WATCH 100: **\$750**
Introduction to Watchmaking
Instructor: Aaron Recksiek, CW21
AWCI Headquarters, Harrison, Ohio

This class is perfect for anyone thinking about entering the profession of watchmaking or the individual who wants to gain a better appreciation for the art of watchmaking. Learn basic skills and techniques used by the modern watchmaker. Before attending, students are recommended to study *Theory of Horology* and be familiar with the basic nomenclature of watchmaking.

August
14-18

WATCH 210: **\$1,095**
Quartz & Quartz Chronograph Service Procedures & Diagnostics
Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

Expand what you know to increase your profit! Quartz watches can be one of the most profitable sectors of your business. This course reviews quartz watch repair and quartz chronographs, including the various important electronic tests, giving you the skills you need to be faster and more consistent at servicing quartz watches.

September
11-15

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Modern Mechanical Chronograph – ETA 7750
Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

Brush up on your chronograph skills before taking the CW21 Exam with this class on the modern mechanical chronograph. It focuses on the service and adjustment of modern mechanical chronographs, such as the ETA 7750.

September
18-22

WATCH 230: **\$1,095**
Balance Staffing & Timing
Instructor: Tom Schomaker, CMW21
AWCI Headquarters, Harrison, Ohio

Build on what you know in this course by investigating 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, adjusting the balance staff, and removing the balance staff from Glucydur balances with the Horia tool.

October
4-8

AWCI Annual Convention & Educational Symposium
Tampa, Florida

Visit us at www.awci.com or follow us on social media for future info.



October
9-13

WATCH 175: **5 CEUs** **\$1,350**
Case & Bracelet Refinishing
(includes polishing kit)
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.

MOON-PHASE INDICATORS



By Daniel Benson, CMW

One of the more desirable functions on modern and collectable timepieces is a working moon-phase dial. Of course, this is hardly a modern feature; clocks indicating the phase of the moon go back almost to the beginning of mechanical timekeeping. Mechanical astronomical clocks from the 14th century, such as that by Richard of Wallingford, or the first Strasbourg clock, indicated the phases of the moon along with the motions of the other planets and significant stars. And, there is strong evidence that Chinese and Islamic clepsydra clocks featuring moon phase indicators existed much earlier.

Certainly, in ancient times the phase of the moon held agrarian, religious, and social importance. Many ancient cultures organized their planting and harvesting and other social events according to the moon phase. But the lunar calendar's importance is not strictly a thing of the past; the great festivals of many religions are based on it. For example, the dates for Passover, Easter, and Ramadan are all determined by the lunar calendar.

So, while the current popularity of moon-phase dials on watches and clocks is likely grounded in their aesthetic appeal, that small crescent-shaped aperture with the smiling face of the moon behind it reflects the thousands of years that humanity has gazed up at the night sky with wonder, and the lives of billions of people around the world whose spiritual practices, even today, are guided by the phase of the moon.

The lunar month (also known as the “lunation”) is the time the moon takes to move through an entire

cycle from full moon to full moon: 29.53058 days (or 29 days, 12 hours, 44 minutes, and 3 seconds). Over the ages, horologists have developed exceptionally complex gear ratios to reflect this precise figure; trains with accuracy of one day over hundreds of years are not uncommon. By contrast, most modern clocks and watches simplify the lunation at 29.5 days, using a moon disk of 59 teeth that is indexed every 24 hours or a disk of 118 teeth indexed twice a day from the hour wheel. This gives an error of 1 day in about 2.7 years (approximately .001%). This seems pretty good until you realize that the equivalent error for a daily rate on your watch would be about 2 minutes in 24 hours: an error most of us would quickly find irksome. Our 14th-century horological forebears would be quite appalled at this casual indifference to our moon phases!

But, the average owner with a modern clock or watch is usually not overly concerned with this high degree of accuracy. In fact, it is quite usual, I find, to discover the owner is completely unaware whether their moon phase honestly reflects what is happening in the night sky or not.

Thus, the reliability of a moon-phase indicator is more properly attributed to “user indifference” than the simplicity of the mechanism. Even if it was set properly to begin with, that initial accuracy is lost should the timepiece run down and stop. Finding the mechanism stopped, most owners will simply rewind it, set the time, and entirely overlook the moon-phase dial. However, for those who do want

their timepiece to accurately reflect the moon's actual phase, a little guidance from a professional horologist never goes amiss:

» Most watches and some antique clocks may have a pusher on the edge of the case or protruding from the dial. Advancing the moon indicator is a simple matter of pressing it repeatedly until the correct phase is shown.

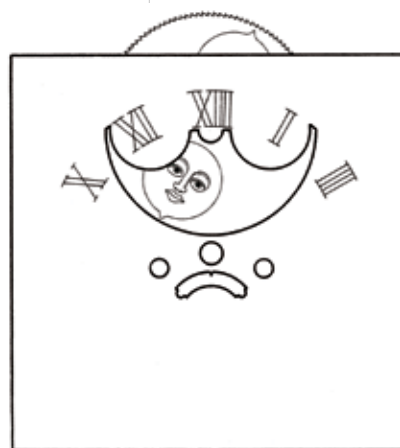
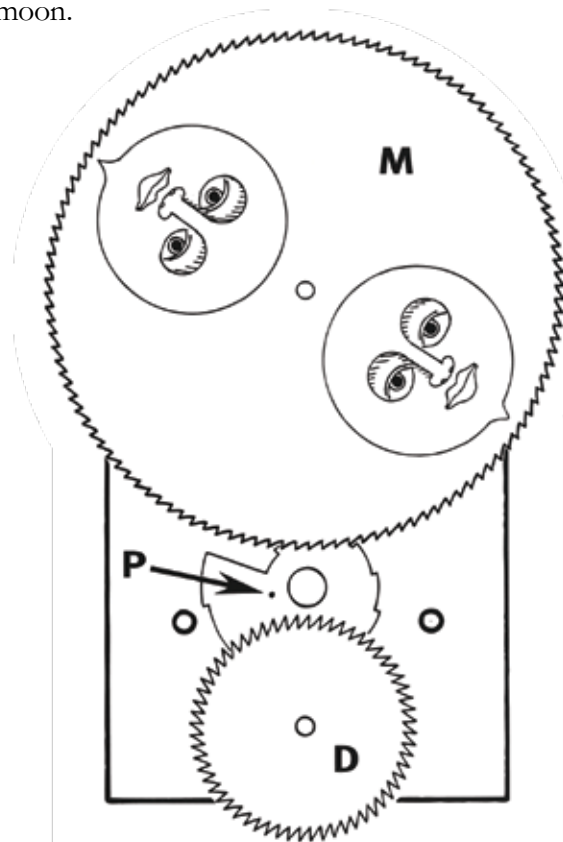
» If the clock has no side panels that open, the owner is obliged to move the disk by applying pressure directly on its face, advancing it to the correct position. The danger here is that modern disks are often flimsy and can be easily deformed. Also, touching the face of the disk can eventually lead to its damage or discoloration. The use of gloves or some other non-marring material to grip the disk can be recommended.

» If the clock has side panels, the rear of the dial can be accessed and the owner shown how to feel for the saw-tooth edge of the disk and to advance it by clicking it forward. This, of course, presents a real risk to the rest of the mechanism should it be inadvertently disturbed.

» Most mechanisms use a simple pin to advance the moon disk, while some have a more sophisticated index device. In all cases, it's helpful to advise the customer not to force the disk forward if they encounter any resistance.

» The accompanying calendar of moon phases for 2017 can be referenced in setting up the clock, as can many ordinary wall calendars. For the online enthusiast, there are numerous smartphone apps that show the current phase in real time.

» There may be many techniques for setting the moon phase correctly. The simplest one I have found is to set the dial to the “new moon” position (the moons are both completely concealed behind the semispheres), then advance the disk one tooth for every day since the most recent new moon.



A simple moon mechanism from an 18th-century English clock.

(Illustrations from *Moon Mechanisms: A Restorer's Guide*,* by Peter Grimwood. Illustrations used with permission of Peter Grimwood.)

***Editor's Note:** This book is available from AWC's library.

Daniel Benson is a graduate of watchmaking at George Brown College, Toronto, and a first-place graduate of WOSTEP in Neuchâtel, Switzerland. As well as having a career in horology, Daniel has worked extensively in book publishing and communications.

CW21 PROFILE: MATTHEW SCHLOEMER

By Ken Nichols

Matthew Schloemer was doing what most watchmakers do the day I called him. He was taking apart a vintage gear train in his workshop in Ohio. He just returned from vacation and had another 20 Rolex watches waiting to be serviced. Changing from vacation pace to work pace didn't seem to bother him. In fact, Schloemer seems good at change.

Only a few years ago, Schloemer was coaching a friend about their job outlook and the inevitable changes that were ahead. He also could see the changes coming to his own job as a logistics supervisor, so he decided to take his own advice and pursue his passion.

He took a week of vacation, borrowed money for the necessary tools, and enrolled in an introductory course at American Watchmakers-Clockmakers Institute (AWCI). "Tom Schomaker (AWCI's instructor)

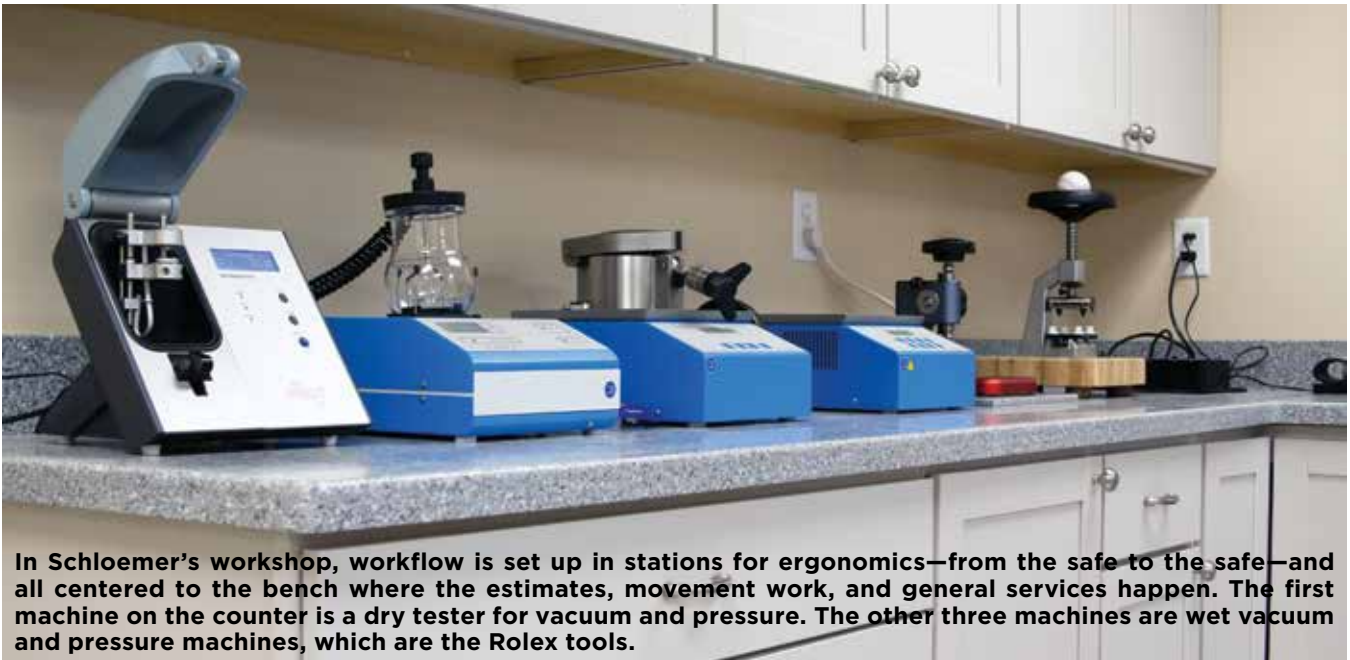
told me to come to the class, and he'd do what he could for me," Schloemer says. "It was just an introductory course, but it was excruciating."

"I remember wanting to be a watchmaker after this first course, so I put on a tie and went door-to-door looking for an apprenticeship," Schloemer says. "I'd tell a jewelry store owner, 'I want to be a watchmaker' and they'd say, 'We can't train you.'" One of those storeowners was at the century-old jewelry store in Cincinnati, Ohio, Richter & Phillips.

"I had a conversation with Matt years ago, and I'm not sure, but I may have encouraged him to get some training," says Rick Fehr, president and owner of Richter & Phillips. Schloemer clearly remembered the conversation and started researching where he could be formally trained.

Photos by
Donna Hardy

Matthew Schloemer at his bench in his workshop, with the separate polishing room in the background (the door to which is usually closed).



In Schloemer's workshop, workflow is set up in stations for ergonomics—from the safe to the safe—and all centered to the bench where the estimates, movement work, and general services happen. The first machine on the counter is a dry tester for vacuum and pressure. The other three machines are wet vacuum and pressure machines, which are the Rolex tools.

“Some months later, my company was offering a buyout, and everything fell in line,” Schloemer says. If losing a job was how things fell into place for Schloemer, then it was a perfect opportunity to get the training he desired.

Fast-forward six years, and Schloemer is working for Richter & Phillips, the same store that kindly turned him away. Not only that, but the store just moved into their new location and Schloemer helped design the state-of-the-art workshop after extensive collaboration with Rolex.

He attributes this fate to his training foundation from the Lititz Watch Technicum, where he earned a diploma, AWCI CW21, a SAWTA certificate, and a prestigious six-month apprenticeship with Rolex, including a month working in and touring the Rolex manufacturing facilities in Switzerland.

His training and certifications made a difference. He described how some watchmakers get out of school and want to get behind the bench, get parts, and stay there. “But I wanted to understand the changes that were forcing the industry to make its decisions we are all experiencing,” Schloemer says.

“It’s more than his skills and training,” Fehr says. “At Richter & Phillips I collaborate with Matt on many levels. He brings a combination of exceptional business skills and people-insight that give me the confidence to pull him off the bench and put him on the sales floor if necessary.”

This adaptability was part of what he learned at Lititz, and it is an integral part of ensuring he is an asset to the jewelry store. “We were taught the professionalism to do a fine job at all aspects of watchmaking, but also the soft skills to speak to people about the technical aspects of the watch,” Schloemer says.

Being trained and certified not only made Schloemer ready, it continued to open doors for him in an industry where access to parts is a critical issue. The Richter & Phillips president says, “Before Matt came to us we had another watchmaker who wasn’t certified, and so we had limited access to brand-specific parts distribution. So Matt’s access to parts is critical to our business.”

Other brands have stopped their spare parts accounts with some watchmakers too, according to Schloemer. “A lot of independent watchmakers can’t

get parts anymore unless they have been through some of the brand's training."

"For example, brand training on Swatch's co-axial escapement is essential for our spare parts account at R&P," Schloemer says. "When I registered for the class, the first available time for me was months away."

In September, a Swatch employee presented a class at the AWCI convention (see page 20 for more information.) It was called, "Swatch Group Spare Parts: How to obtain and maintain your purchasing eligibility." The session included information from the brand on training opportunities, guidance on equipment requirements, workshop configuration, and using the brand's extranet to order parts.

Some may perceive the brand's approach to ordering parts, training requirements, or even their workshop recommendations as being difficult. Schloemer does not. He thinks this is part of the change the industry is facing. "I don't think there's malice behind changes," Schloemer says. "I think it's about their customer service."

Technology has given the brands the ability to deal directly with watchmakers, whereas before there was a reliance on distribution houses. This direct connection to watchmakers may refine the supply chain for the brand, but it can also benefit the customer.

Schloemer explains, "For example, I generate repair reports for Rolex on a regular basis, so if a customer's watch goes directly to Rolex, they will be able to look up the work I did and will be able to help the customer by having a better history of the watch."



Polishing room. Left to right: The lathe for turning cases, bezels, and backs during refinishing, as well as making odd parts and tools as necessary. A heated drier for drying cases, bracelets, etc., during cleaning and refinishing. The heated ultrasonic, which is used mainly for cleaning watch components regardless of whether or not a refinish is in progress. Some quick service jobs need to be cleaned or steamed, or as requested by customers. The boiler steamer is to the right of the sink. It is excellent for forcefully removing contaminants from watch cases and bracelets.



Schloemer uses the computer for ordering spare parts. The space to the left of the safe is for a custom-made cabinet that will be delivered soon.



The polishing machine, PM2, was purchased through Rolex. It has variable speed, suction fans, LED lighting, and a collet-style chuck system for ease in changing out mandrels.

The training and certifications gave him the skills he needed, along with the access to parts, but the experience working on advanced equipment also had an impact on his success.

“At Lititz, I worked in a million-dollar workshop, and when I took the apprenticeship with Rolex, it was more like a \$15-million workshop,” he says. “Now with three-and-a-half years of experience, I can see the benefits of the right tools and the workshop layout.”



The mainspring winders are two different takes on an age-old design. Left: Bergeon—universal and quite modern. Right: Rolex—caliber specific and designed for expedient use. Neither one is better than the other, per se, but the Rolex set has some handy features.



Schloemer says, “My bench is clean each morning and evening, aside from the testing machines and phone. I set up each day with the basics: screwdrivers, auto oiler, tray with often-used tools, and solvent. The only other things I take out during the day are jobs that are in progress, tools specific to those jobs, and lubricants for specific purposes. Everything finds a home when its purpose has passed, and only those basics remain.”



Schloemer is comfortable working on the sales floor as well as working behind the scenes as a watchmaker. He has developed a couple of clients who have brought repeat business to the store.

As the industry redefines its processes with after-sales training and parts, Schloemer thinks he’s in a unique spot. “We have a repair program that is willing to buy that \$5,000 piece of equipment if there’s a clear business need,” he says. “Everyone from the brands to our business is looking at the bottom line, so I have to put myself in their shoes when I ask for equipment or training.”

Change is the norm in the industry, and it is evident in the shift in customer expectations. Schloemer believes that watchmakers need to earn the trust of their customers, cultivate pride in their work, and sustain their passion for the traditions they carry on every day to preserve and maintain quality timepieces for the future. Schloemer’s ability to adapt to situations with his customers, his boss, or brands makes a difference.

Ken Nichols is a freelance writer and photographer who lives with his wife, three girls, vintage Airstream, and humble watch collection. He works with people in corporate HR in the South. <https://about.me/ken>.

KNOW YOUR VALUE

Part One: Introduction

By Michael Gainey, CC21

One of AWCI's main goals is to help its members increase their clock- and watch-repair skills. Developing skills is of first importance, but time should also be spent teaching those who are properly trained how to earn a good income. We're not talking about earning enough money to supplement your spouse's income, supplement a retirement check, or earning just enough to "pay the bills." I am talking about earning a "good" living. By that I mean an income that can support an entire family on one paycheck, an income that allows for vacations, a nice car and home, private school for your children, and money for retirement.

An organization promoting a trade where income levels are relatively low will have a difficult time convincing people that the trade it represents is a trade worth pursuing. For this reason, I was asked to teach a class at AWCI's 2016 annual convention on "Know Your Value." The

goal was to help participants see their value to the consumer more clearly and to prepare them to earn a "better" income.

Although I am always looking for ways to increase my income through better skills, productivity, and pricing, I have always been rather happy and a bit surprised by what I have been able to earn. I assumed all clockmakers and watchmakers were doing at least as well as I was. So, I was a little surprised when I read a post on one of the Internet chat rooms I follow. The

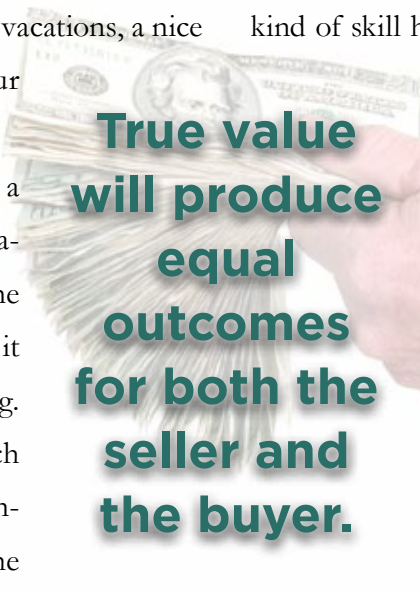
clockmaker was lamenting that clock repair was not a very lucrative business and that he was confident that less than 10% could possibly earn their entire income from their profession. He may be right that very few are earning their entire income from clock repair, but that has not been my experience. If he is right, why are only 10% able to earn their entire income from clock repair? This led me to think about why my experience is so different than his. Of course, I don't know the specifics of how he was running his business or what kind of skill he had. Because of this, I will not try to

speak to his circumstance, but in articles to follow I will share with you the things that have worked for me.

A worthy question, then, is, "What kind of income can a skilled watchmaker or clockmaker earn from these two honorable pro-

fessions?" It is a subject not often discussed when clockmakers or watchmakers gather. Periodically, prices for specific jobs are talked about, but annual income almost never comes up.

Statistics do not seem to exist regarding clockmakers' incomes, but two websites offered information for watchmakers. The US Bureau of Labor Statistics says the median salary for watchmakers in 2014 was \$38,240. A website called Salary.com uses the number \$33,687. These are decent incomes



**True value
will produce
equal
outcomes
for both the
seller and
the buyer.**

but nothing for aspiring watchmakers to get excited about. I assume these numbers are for people who are employed by someone else and not independent watchmakers. In most cases, an independent, self-employed watchmaker or clockmaker will have a greater income than one who is working as an employee.

During my class at the recent convention, I asked the participants if anyone was willing to share what they earned last year. As I expected, I had no volunteers. I didn't volunteer either. It is no easier for me to talk about than anyone else. Nonetheless, we have to find a way to establish an idea of the level of income that is possible.

To move the discussion forward, I asked the participants, "Would you get excited if I told you that you could earn \$30,000 per year repairing clocks or watches?" No one raised a hand. I asked the same about \$40,000 and \$50,000, but still no hands. When I hit \$60,000, I finally got a few hands. The further up the ladder I went, more hands were raised as they contemplated the ability to earn that kind of income. When I reached \$100,000, all but one person had raised a hand. I am here to tell you that you can make this much and more, but only if you have the knowledge, skills, experience, and personal drive to do so.

Before I share with you the things I believe are necessary to earn an above-average income, I want to talk about the concept of "value." The value of manufactured goods is much easier to determine than is the value of skilled labor. For a manufactured item, you have a clear idea of the cost of material and labor to complete the finished product. The manufacturer will compare its item to the cost of similar items to deter-

mine how much profit to tack on the back end and still be competitive. The manufacturer will, of course, consider the quality of the product as compared to the other manufacturers' products. If its product is of better quality than the others, the manufacturer may price the item at the high end of where everyone else's prices are, or perhaps a bit higher.

When it comes to the value of skilled labor, we have many more variables. You can have three workers of equal talent performing the same task. One is semi-retired and just wants to make a few extra bucks.

Another lives in the Midwest but has a spouse and young children, so prices jobs higher to support the family. The third lives in New York City, Boston, or Los Angeles where the cost of living is high. This third person also has a spouse and kids, so charges even more.

They are all performing the same task, but they are all charging differently and earning different incomes.

Here's another variable. There are three more clockmakers all living in the same city. One person repairs a few clocks a month and has no training but has learned a great deal from a few books and a friend who also repairs clocks. Another has good training but has only been working full-time for four or five years. The third clockmaker has full training, continues to take additional classes, is certified, and has over 30 years of experience. Which one is worth more? You would think that the more experienced person should earn the highest income. But what stops the person with the least training from charging as much as the person with the most training? Legally, nothing!

**If you can
increase
your skill,
you will
increase
your value.**

What about the three people mentioned in the previous paragraph? What stops the person working for extra money from charging just as much as the person in New York City? Again, legally, nothing. However, two things might prevent that. First, customers may refuse to leave the job. Second, the repairperson's prices might be limited, based on how he or she perceives his or her value as far as skills, etc.

The truth is, each of these six people will charge a different amount for completing the same repair. Of those six different prices, which is the right price? With six different prices, we still have not determined the “value” of the job. Some would say the value of the job is whatever anyone is willing to pay at any given moment. People often call me to ask what their clock is worth. Sometimes I tell them, “You will know when you sell it!”

Determining value can be confusing because you need to consider many variables. A person in Boston or New York City may be willing to pay more for a repair job than a person in a smaller Midwestern city. A person in a hurry to get a job done will pay more than a person who is willing to wait. Determining the value of something based on what someone is willing to pay at any given moment is what we routinely see at auctions, where there is pressure to sell something immediately. However, most things we purchase are not bought at auctions, including repair services.

So how do we determine value? Most often we use comparison to determine value. When we shop, we often compare prices before buying. The Internet has made this much easier. You can go to websites

listing the same item at multiple prices, allowing you to choose where to buy it and what to pay. These prices are often fairly close, falling within a specific range, since there are fixed costs for most items. Some sellers are willing to make a little less on each item they sell, while others have lower or greater overhead costs. In this instance, the quality of the item is the same, but the free market allows for competition and, therefore, a variety of prices are offered to the consumer.

Often we are shopping for an item that is made by many different manufacturers. Let's take a televi-

sion, for instance. Some manufacturers are known for high quality and other manufacturers are not. Some quality companies make cheaper, lower-quality televisions in addition to their high-end televisions. When comparing televisions of the same size and type, the difference in price usually centers around the quality of the item. If you think it is hard to pre-determine the

quality of your television before you buy it, think about the challenge for the consumer to determine the quality of your repair work.

Value refers to a two-way transaction. *True value will produce equal outcomes for both the seller and the buyer.* The seller sells a “good” product at a price that allows the seller to prosper and stay in business, and the buyer gets a “good” product. Or a seller sells a “superior” product at a “superior” price, and the buyer gets a “superior” product that lasts longer or works better than the “good” product.

Any poorly skilled repairperson can open up a shop and charge any price for a repair—and even charge a superior price for an inferior repair. Any

**This is
why active
participation—
not just
membership—in
an organization
like AWCI is so
valuable.**

repairperson can simply keep raising prices until customers start declining. This is not what I am encouraging. My point, like the one made above, is for the repairperson to provide value to the customer by charging a price in line with the quality of the work. In a “fair and honest” marketplace, a more experienced, more skilled repairperson should be able to charge more for his or her work, and a less skilled, less experienced repairperson should charge less. Alas, we rarely live in that world. Many of us who seek to run an ethical business, try to attain that goal of a balance between quality and price. We want to be fair to the consumer, but we must also be fair to ourselves. Unfortunately for many talented people, our effort to “be fair” frequently causes us to undervalue our work, resulting in lower income.

Having established that price should reflect quality, we must ask ourselves what quality of work are we providing to the owner of the watch or clock? If you want to increase your income and are performing high-quality work, find out what others of similar skill are charging and move your pricing in that direction, assuming it is higher. If you want to increase your income but know that your skills are not nearly as good as others who are charging substantially more, then seek to increase your skill and provide true value for your new, higher fees.

Unfortunately, many people in clock and watch repair do not associate with others in the trade. They have no idea how their skill set compares to others or what others are charging. This is why *active participation*—not just membership—in an organization like AWCI is so valuable. *Horological Times* can provide valuable insight into repair techniques, but networking and socializing with other like-minded people

can expand your world. Most people are not aware of what they do not know. They settle for basic repair competency (and often basic income) and never strive for excellence. After 38 years in the trade I am still taking classes and comparing notes with others. While attending conventions, I have often learned more in a simple conversation over lunch or before or after class than I have in the classes themselves.

Once you determine where you fit skill-wise among your peers, it is easier to determine your value. The good news is your skill level is not fixed. If you can increase your skill, you will increase your value—both to you and the consumer, resulting in higher income for you and a better finished product for the clock or watch owner.

Next month in Part Two, I will explore ways to help you determine your value to consumers as compared to others in the trade.

Michael Gainey is the owner and operator of Master Clock Repair in Columbus, Ohio. He frequently teaches classes and workshops on clock repair.

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SWATCH GROUP SPARE PARTS ELIGIBILITY AND CERTIFICATION

By Hannah Mancill

At this year's annual convention, Michael Mooney, Technical Trainer at Swatch Group, taught a class in which he laid out the criteria for acquiring material, specifically movement and casing parts, from Swatch Group. Mooney discussed equipment, workshop premises, the OMWE 1120 certification process, and site visits. Everything one should have and do to access Swatch Group Movement and casing parts was provided in the class. That information is available below. Eligibility to purchase accessories (straps, bracelets, clasps, buckles, etc.) is unrestricted and is not related to one's eligibility to purchase movement and casing parts. For questions and additional information, email SGUS-TechnicalTraining@swatchgroup.com.

EQUIPMENT

Swatch Group does not require the workshop to purchase specific brands of equipment; many brands meet the necessary requirements. Functionality is key; equipment should be up-to-date and capable of testing the Swatch Group calibers for which parts are being ordered. For example, a workshop desiring parts for a movement with a co-axial escapement must possess a timing machine capable of testing co-axial escapements.

Below are the equipment criteria:

Movement-cleaning machine (equipped with ultrasonic, clean, and dry functions) Dry water-resistance tester (equipped with positive and negative pressure) Wet water-resistance tester (must be capable of testing pressure of 125 bars to obtain parts for dive watch) Condensation tester Timing/testing machine for quartz movements • Capable of checking rate • Capable of testing consumption and lower working limit • Must provide power to the movement • Must be calibrated every 3-5 years	Timing/testing machine for mechanical movements • Must be capable of testing co-axial escapements • Must be calibrated every 3-5 years Microscope, 40-50x with light Wrist simulation (slow) winder Polishing machine Must be stored in separate room from movement work Ultrasonic Must be stored in separate room from movement work Demagnetizer Staking tool Case opener Crystal and case back press	Printer for timing and water resistance results Mainspring winders Jewel press (for example, the Horia tool) Movement holders with jewel support (for setting hands) PC/Internet access Service tracking software with statistical information capability • Swatch Group recommends something like Excel (tracking system should provide information such as how many jobs are in the workshop, their repair status, the number of repairs waiting on parts, etc.) • Handwritten systems are not efficient for service tracking. Service boxes/envelopes for works in process (to protect watches) Secure storage (i.e., a safe, vault)
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TESTING/CERTIFICATION

Swatch Group, in addition to the aforementioned equipment, also requires a watchmaker on staff at the workshop interested in an account to attend a free¹, five-day training course in Secaucus, New Jersey, designed to expose the candidate to the watchmaking standards and techniques of Swatch Group U.S. This course, called OMWE 1120, is based on service of the Omega 1120 (2892A-2) movement. It is a prerequisite for all future training. Once OMWE 1120 certified, the watchmaker may gain entry into Swatch Group training in any country.

Although a CW21 certification is not required for those wishing to participate, the successful candidate must be competent in the adjustment of endshakes, correction of hairspring errors, and all aspects of lubrication in modern Swiss watches prior to attending the OMWE 1120 course. The instruction given prepares participants for the four-hour examination administered at the conclusion of the course and is not meant to teach watchmaking skills. In fact, if the applicant does not already possess these skills, it is unlikely that the examination will go well.

During this examination, each candidate will be given a movement, dial, hands, and case to perform a basic service. A variety of obvious faults will be intro-

1. Watchmakers must provide their own transportation and lodging.

duced into the movement that the applicant is expected to correct. Examination graders evaluate cleanliness and adherence to other service criteria, including dial and hand setting, casing, and timing. Participants must score a minimum of 80% to pass. If a passing score is not achieved, a re-sit must be completed not less than 6 months, nor more than 12 months from the date of the failed examination. If the watchmaker scores low enough, he or she may be required to undergo additional training prior to retaking the examination. Currently, all training is booked through 2018. This course is only available in English.

WORKSHOP PREMISES

Workshop premises must provide proper and adequate space allocation for the watchmakers and equipment. A separate area for polishing and cleaning equipment is required, as well as a general upkeep, organization, and cleanliness of the facility.

SITE VISIT

A site visit to assess the workshop and verify it meets requirements will be performed as part of the final approval. The workshop will be notified of the visit ahead of time; it will not come as a surprise.

Provided that the workshop is outfitted with the proper equipment, a watchmaker on staff is OMWE 1120 certified, the facility is organized and spacious enough to easily accommodate staff and equipment (with polishing and cleaning rooms separated), and a site visit is performed to verify the aforementioned criteria are met, the workshop will be issued a Swatch Group parts account with access to the corresponding movement and casing parts. At that point, access to parts must be maintained by replacing equipment as it becomes outdated and continuing to perform quality watch repairs.

Hannah Mancill is a recent graduate of the North American Institute of Swiss Watchmaking in Fort Worth, Texas.

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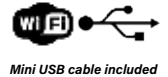
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Making a Watch from Conception to Finished Product with Kaj Korpela

WATCHMAKING, PROTOTYPING, AND RESTORATION OF WATCHES PART ONE



By Henrik Korpela

Perhaps you read the Industry News article in the October 2016 HT about the watch my brother, Kaj Korpela, has created. In a series of articles, I will write about how Kaj made his watch, comparing his ways to some of my ways of making parts in restoration. Consequently, watchmakers can see that the same part can be made with different techniques, tools, and machines. The same tools and machines used for making parts in restoration can usually be used to make a watch.

I believe many watchmakers can do what Kaj is doing. You may even already have many of the tools and machines needed to make your own watch. Or you can buy them over a period of time, or as needed. You most likely already have much knowledge of making parts. However, if you feel you lack knowledge, no worries! Information has never been as abundant and easy to find as right now. YouTube, for instance, is an excellent resource to search for information, as are books, of course. The knowledge and skills needed can be obtained much easier today than in the past—whether you prefer to learn on your own, under the tutelage of an experienced watchmaker, or by attending a learning institution.

Even if you do not plan to make your own watch, this article series will benefit you in other ways, and I hope it will inspire you. Be open-minded; the way Kaj made his watch is by no means the only way. It's

more important to find a way that suits your style and unique situation regarding tools/machines, techniques, and, perhaps, even location. Location could be a limiting factor or an opportunity to do more on your own. If you live in an isolated place far away from other watchmakers and subcontracting firms, you may gravitate towards making more of your own parts and tools than if you lived near component-making firms and tool makers. I am sure that can also influence the end product.

Because of these variables, I think watches today are so interesting. Independent watchmakers can produce small numbers of unique and original watches that have a more human and personal touch, giving collectors more choices. I hope more eager, passionate, independent-thinking watchmakers will start working in the future. They don't necessarily have to come from Switzerland. They can come from many other countries where people have different values and backgrounds. It would make watchmaking so much more interesting and alive for everyone. So far, the trend looks good.

I also hope there will be more collectors willing to meet these young, aspiring watchmakers. A timepiece, for me, is a piece of mechanical art or a piece of jewelry with the addition of interesting mechanical features. Therefore, I think it can reflect the maker or the maker's taste. Since watches often are regarded as

something you would keep for a very long time, and perhaps even pass on to the next generation, it seems unwise to put a lot of effort into designing watches to current peak fashion trends, since they may soon become passé. However, I am sure some will disagree with me, which is fine. This is just my personal view on a specific category of watches, the handmade or hand-crafted watch.

How to Start Making Your Own Watch

A good approach is to make an overview for yourself to follow as you make the watch. Therefore, I distilled the most important points that George Daniels's book *Watchmaking* covers on making a watch, mostly from the chapter "Movement Design," pages 281-318. That way, you have his idea how to go about making your own watch on one page. It's also worth mentioning that when you read George Daniels's book, you'll realize that he deeply understood the concept of mechanical timekeepers and timekeeping. I think that's a key factor to successfully make a good mechanical product such as a watch. There is, of course, the industrial approach. However, for me, that is not particularly interesting, since I doubt most independent watchmakers are planning to establish large, mass-manufacturing watchmaking corporations in the beginning of their watchmaking careers.

MOVEMENT DESIGN OVERVIEW

Background

1. Concept and idea.
2. Complications, novelties, gimmicks, etc.
3. General dimensions and design of watch.

First steps

1. Decide how big the movement must be (diameter and thickness).
2. Decide how many hands the watch will have.
3. Decide where the hands should be laid out on the dial.

4. Decide where the winding crown will be positioned on the case.

Planning the movement

1. When the dimension of the mainplate is known, the dimensions of the balance wheel and barrel can be derived; slightly less than half of the mainplate.
2. Choose frequency of movement. This depends on the concept of the watch (classical dress watch or sports watch).
3. Choose gear-train ratios. Derive from personal experience; e.g., 8:1 between center and third gear.
4. Choose dimension of gear-train components. This will be influenced by the ratio of the gear train and position of other components; i.e., position of seconds hand (fourth wheel position, which was previously chosen in the first steps).
5. Choose position of third wheel.
6. Choose position of escape wheel.
7. Choose size of escape wheel (influenced by size and type of escapement).
8. Choose type of escapement.
9. Choose size of escapement (influenced by available space).
10. Choose position of escapement.
11. Choose type of oscillator.
12. Choose position of oscillator (influenced by position of escapement and diameter of mainplate).
13. Choose type of winding and setting mechanism.
14. Choose position of winding and setting mechanism (influenced by position of winding crown).
15. Choose position of complications (under dial or movement side).
16. Remember to leave space for steady pins and screws.
17. During the planning of the movement, consider the elevation of the components. Overlaying too many components will make the watch thick.
18. Design bridges, click, ratchet, and crown wheel.

This overview can serve as a guide, but you may decide not to follow it exactly. Maybe you have a different approach, which is fine. In the end, what works, works. In the beginning, when learning watchmaking, I believe it is more important to know how something is supposed to work well rather than how to make it. If you know how something is supposed to work, you can usually find a way to make it. With trial and error, if you understand how a wheel is supposed to interact ideally with a pinion, you can—even without too many mathematical calculations and just knowing the basic principles of gears—make a set of gears that work very well. However, it is certainly easier to follow a set of instructions (let's just hope the instructions are not flawed). I think that working by trial and error is a way to learn deeply. Books are also useful and can bring you to the initial phase of starting the process of trial and error. So, before you attempt to make the actual part, make sure you have a good

understanding of how it is supposed to work well or ideally; otherwise, you may waste a lot of time. If you know how all moving parts of a watch should ideally work and interact with each other, it will help you figure out what the shape of a missing part should be to make it work.

Workshop, Machines, And Tools

The workshop rooms





Swiss Schaublin 102

This is the famous Swiss Schaublin 102 toolmaker's lathe, a great precision lathe for not only the toolmaker but also for the watchmaker and clockmaker to make larger parts or tools, and even for decoration. A fully equipped 102 will take you very far. Kaj's 102 also has overhead drive with milling head, dividing head, a full set of collets, and for comfort a binocular microscope on a boom stand for long hours of work.



Aciera F1

The Aciera F1 watch-and-clockmaker's manual milling machine is perhaps not the first machine you would invest in, but it will give you more possibilities when making parts and tools. It can also be used with the Schaublin 102 lathe or a similar lathe to perform one operation on the F1, and later perform another operation on the lathe, since the faceplate can be detached and mounted again in the lathe without having to lose the center or position of the part being machined. This can be done both ways, back and forth, until the part is done.



Hauser M1

Like the F1, the Hauser M1 jig-boring machine can be used in a number of ways, but the Hauser M1 has much greater precision. It is sometimes called a pointer, because it precisely points out locations for holes in the mainplate. For example, it comes with a microscope to observe the location of work mounted through the quill where the spindle would also be situated, making it very convenient to find the right location if you want to enlarge a jewel hole in a mainplate. This machine is not intended to be used as a milling machine, but if used carefully, it can be operated as such to mill smaller parts of softer metal. It is a great machine for restorers to have as well.



Hauser 2A3

This is also a Hauser jig-boring machine, the 2A3 that my students and I use. The main difference, compared with the M1, is the size and weight. It's probably around 10 times heavier, weighing in at around 800 kg (approximately 1,764 lbs.), depending on how many tools it comes equipped with. Due to its massive weight, it has an incredible rigidity and therefore promotes an even higher precision than the M1. Because of the larger size, it could also be ideal for clockmaking and precision toolmaking. It is also not as delicate as the M1, and therefore, it's possible to mill many different watch parts very precisely. The main disadvantage is the weight. Not every independent watchmaker may have the floor to carry this kind of heavy machine.



Schaublin 65

Another smaller type of lathe is this Schaublin 65. It's the size between a watchmaker's lathe and the larger toolmaker's 102 lathe. It is used in combination with the F1 and M1, since it takes the faceplate that fits in both the M1 and F1 machines. This lathe is not strictly necessary if you have the 102, since it can do the same thing. But having more lathes will give you more freedom making various parts faster, since one lathe can be set up doing one operation, and another one can be set up for something else. I think this one would be a luxury. This size is also very hard to find, but the bigger brother to this one, the so-called Schaublin 70, is much more common and perhaps better to have since it's easier to find spare parts and accessories for it. The 65 and 70 can also replace the 102 if there is a lack of space in the workshop.



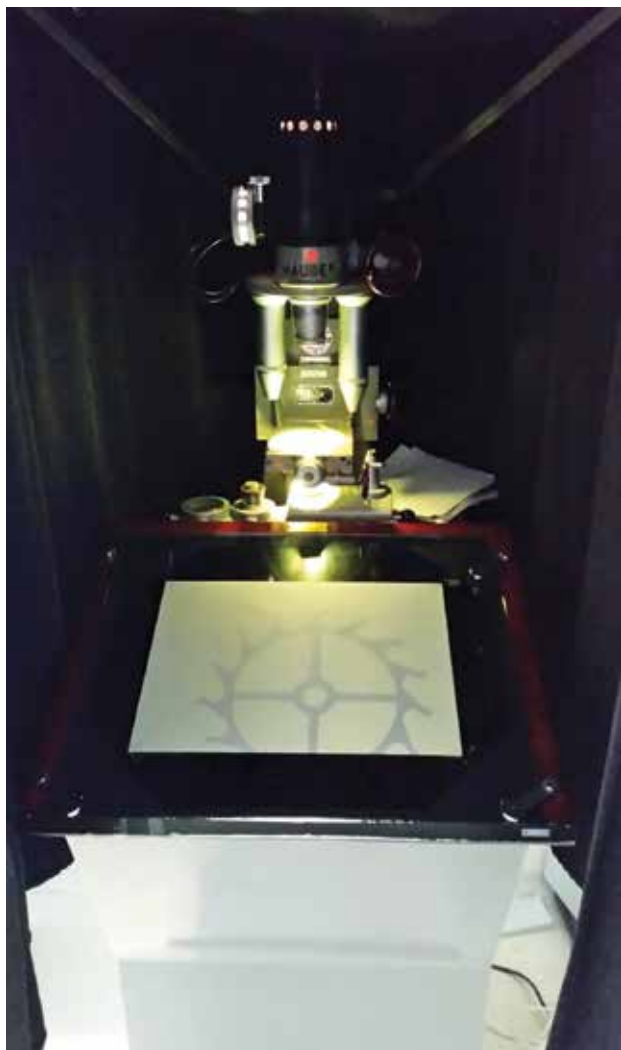
Small Watchmaker's Lathe

This is, in fact, a Chinese small watchmaker's lathe. It has no particular name, as it can be bought on eBay without a brand tag. If you can't afford a Swiss one, this would be an alternative that seems to work fine for everyday work, grinding, and polishing operations. You don't want to use an expensive lathe for grinding that produces abrasive particles that could wear out the lathe prematurely. Perhaps a small watchmaker's lathe might be your first major investment, since, theoretically at least, you can make most parts of a watch with it—if you have most of the accessories, that is. However, it will require more attention and practice, since they are not so rigid and precise as larger lathes.



Easson EV-2515

This is an Easson EV-2515 vision-measuring device from China, with an integrated Renishaw touch probe. The user has the ability to manually measure the shape of larger items. It's generally used for measuring parts, quality control, and to aid in copying the dimensions of parts for reproduction purposes. It has the advantage of storing the information and images to the software in the attached computer, not something you necessarily need but very convenient and timesaving.



Hauser P 215

This one is a less expensive alternative and is called a profile projector, also sometimes referred to as an optical comparator. This one does not have the digital features and would therefore have to be used completely manually. It is also much older and a bit heavier but still a great alternative. There are also smaller table-top variations of these measuring instruments worth looking into if you lack space.

Pantograph

This is a pantograph, a machine used mainly to engrave work. It's not really for watchmaking, but it can still be used for various applications because it has a revolving spindle (on the right) similar to a milling machine. It is guided on the left side where an arm with a point attached to the end is following a channel that has some pattern, such as letters and numbers, usually made out of brass or even acrylic. It then reproduces the same pattern on the right-hand side with the spinning spindle carrying a cutting tool translating the movement to whatever size necessary (in this case, always smaller or, at the most, the same size). I first read about this machine in George Daniels's book *Watchmaking*, where he explains how to mill out the spokes of wheels. It also has a table that can move in three axes. A series of parts could be put in line, and some small production could be done. I don't use this to cut out the spokes of wheels, since I do that in the jig-boring machine. My students, however, use it to make enlarged models of watch mechanisms as a sort of quick prototyping machine. Because it is not very precise at milling, the parts are later hand-filed or mounted in more precise machines for final machining to accurate size. Obviously, this is not the first machine you would purchase, but I believe it is still worth knowing about and what it can be used for.



In Conclusion

Now we have some idea of what machines, tools, and knowledge are useful to have when beginning large projects or restoring watches. In the next article, we will start looking more at the practical side of making

parts for a movement, starting from the beginning. Kaj, as we will see, did not follow George Daniels exactly as the guide describes. So, it will also be interesting to see where he took a different path. Stay tuned. . . .

Books

There are many practical books, in addition to *Watchmaking* by George Daniels, on how to restore watches and make watch parts that helped both Kaj and me. Below are just some of the great books Kaj and I are using.

Antique Watch Restoration, Vol. 1, by Archie B. Perkins

Books by Archie B. Perkins are great, and I love them for their practical uses and easy-to-understand explanations with great illustrations. In this particular book are several chapters on gears and how to restore them, in addition to other information useful to the restorer. This is a must-have.

Wheel and Pinion Cutting in Horology, by J. Malcolm Wild

This book is really great when it comes to gears and understanding some of the theory behind gears and other related mechanisms. Although the book is more for clockmakers, it is also useful for watchmakers. It contains interesting historical mentions about gears in horology, but it is also a very practical book. There's a great chapter on how to make a missing stop work that is easy to follow with simple calculations that anyone can understand. You'll be able to restore missing stop works commercially, especially if you are organized with your shop and tools.

Gears for Small Mechanisms, by Wilfred Owen Davis

This book is very theoretical, so if you want to understand the gear in depth, this is probably one of the best out there. I would say this is a bonus to have but maybe not absolutely necessary.

The Modern Watchmakers Lathe and How to Use It, by Archie B. Perkins

This is a great book on the general and advanced uses of the watchmaker's lathe. It even covers how to restore a worn-out watchmaker's lathe.

The Watch Escapement, by Henry B. Fried

This book has an excellent chapter on how to draw the Swiss lever escapement. Kaj and I were taught how to draw exactly the same steps when we were students in the Swedish watchmaking school. It contains much information about restoration of the Swiss lever escapement and the cylinder escapement. A very practical book.

The Practical Watch Escapement, by George Daniels

This book explains various types of escapements, their advantages and disadvantages, and is a great supplementary book about escapements.

Echappements et Moteurs pas à pas, by Charles Huguenin, Samuel Guye, and Maurice Gauchat (French)

If you can read French, this book is great to reinforce the understanding of the Swiss lever escapement. Due to its perfect illustrations and simple-to-understand explanations, I use this book when teaching my students about the Swiss lever escapement.

NIHS Extrait des Normes de L'industrie Horlogère Suisse (mostly written in French, but it contains some English definitions and explanations)

This book contains some of the Swiss watchmaking standards. It has some useful recommended tolerances of parts and examples of drawings of watch parts. If you decide to make a series of watches, this book could come in handy because it covers such a wide range of topics. But for restoration of old watches, I don't see much use.

In this article, when I use the terms "watch" and "watchmaker," I also refer to the clock and clockmaker.

Henrik Korpela is a watchmaker living in Switzerland and the principal of Korpela and Hofs Watchmaking Competence Centre.

SETTING UP AN AMERICAN TIME AND STRIKE CLOCK

By David J. LaBounty, CMC, FBHI

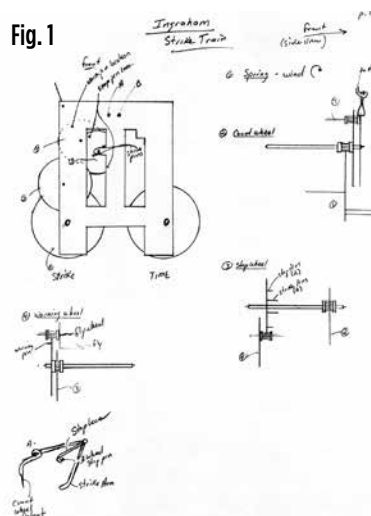
The modern clock repairer will come into contact with a myriad of different clocks by many manufacturers and a large variety of styles, each with their own particular setup procedures. An in-depth discussion of each style and manufacturer would fill many volumes.^{1,2} Not everything could be covered in this article, so I suggest you consult the references given in the endnotes to fill in any gaps in your knowledge. That said, a brief overview of one particular style may benefit the clockmaker. The Connecticut American count wheel striking mantel clock is one style where a generalization of the setup procedure is possible and is likely to cover most of the striking American mantel clocks encountered.

Drawing the Movement

The setup procedure will actually begin prior to restoration and before the movement is disassembled. It is important not only to know how the movement functions but also the location of each part. Studying the movement, and making drawings, forces the repair person to become familiar with the parts in a way that simply can't be done by taking a photograph.

Understanding how the parts interact before disassembly will greatly reduce the amount of time necessary to set up the movement.

The drawings don't need to be highly detailed, nor to scale, but the parts should be labeled and easily identifiable. Noting orientation is also a plus, Figure 1.

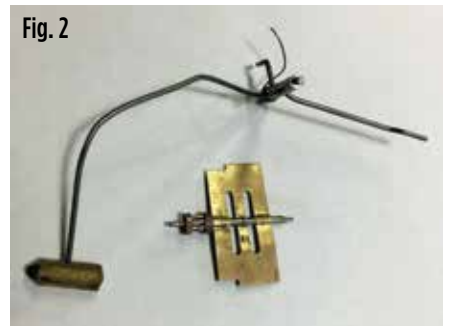


Reassembly

Using the detailed drawings, you can reassemble the movement with all of the gears and levers in their proper positions. The time train on an American mantel time and strike movement may be installed without concern of the need to synch the gear train. The strike train, however, does require several of the gears to be properly oriented so the movement will strike properly.

Setting up the Strike Train¹

The butterfly and the hammer lever may initially be left out of the movement to aid in assembly. These can be easily installed once all of the other gears and levers are jiggled into place and the plates secured to the pillar posts. Leaving them out will make it easier to position the key strike gears.



The key strike components are (See Figure 3)—

- ▶ The count lever
- ▶ The maintenance lever
- ▶ The stop lever
- ▶ The maintenance cam on the third wheel
- ▶ The stop/warning wheel



The count lever, maintenance lever, and stop lever are often attached to the same arbor so their installation is done all at once. The gears they interact with are installed using the levers as a reference, with the notch in the maintenance cam lining up with the main-

tenance lever and the pin on the stop/warning wheel in close proximity to the stop lever.

The position of the stop/warning wheel can be fine-tuned after assembly by gently lifting the plate just enough to disengage the pinion from the third wheel. The stop/warning wheel can then be rotated and re-engaged with the third wheel. This process can be repeated until the gears are properly synched. This means the maintenance lever is in the middle of the notch when the stop/warning pin is engaged with the stop hook. The butterfly and hammer assembly may be installed using the same technique of lifting the plates slightly.

All of the other conditions for proper strike may be attained by adjusting the levers once the movement is assembled. Be sure the lever return springs are well attached with enough tension so that the levers don't move when the movement is turned upside down. (See endnote #1 for a more detailed description of the levers of American striking clocks.)

Setting Up the Time Train

Setting up the clock would also include adjusting the escapement for proper function. Time and strike American mantel clocks were made with recoil, half-dead-beat, and Brocot escapements, and each is handled in a slightly different manner. The condition and proper adjustment of the escapement will greatly affect how the clock runs.^{3,4,5}

Strike Lever Adjustments¹

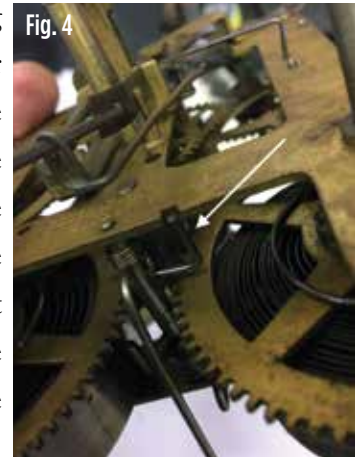
There are several lever adjustments that need to be made once the movement is assembled. The goal is to adjust the levers for the greatest reliability and least chance of fault. The movement is designed to allow room for error due to play of the gears, motion of levers, temperature changes, minor wear, etc. The levers should be adjusted so they are in the "sweet spot." That means the count lever rests in the middle of a notch in the count wheel, the maintenance lever rests in the middle of the notch on the maintenance

cam (at stop), and both the warning and stop levers properly catch the stop/warning pin.

The strike release point should also be checked and adjusted so that the clock strikes when the minute hand is pointed directly at the 12. Some movements strike the half-hour so this should be checked as well. The adjustment for an early or late release is done on the "J" lever.

Adjusting the Hammer¹

The amount of lift of the strike hammer is also something that should be checked when setting up the clock. Too little lift and the hammer won't provide a solid enough blow to be heard. Too much lift and the strike train could stall due to insufficient power to lift the hammer. The ideal is one hammer-head's length of lift, and the adjustment is done on the hammer detent, Figure 4. Bending the detent one way or the other will change the position of where the hammer tail dwells in the hammer lift pins on the third wheel. The result is more or less lift as the hammer tail falls off the pin sooner or later.



The final setup for the hammer is done once the movement is in the case. Adjust the hammer arm so the hammer properly hits the gong, bell, or rod. The hammer should hit squarely and rebound after a single blow. If the hammer is too close, it will stutter or come to rest against the gong, rod, or bell, deadening the sound.

Setting the Beat

Once all of the lever adjustments have been made, the movement may be installed into the case and made to run. The movement should be wound, the pendulum hung, and then the beat checked.

The beat of a clock is the sound of the escape wheel tooth being caught by the pallet and is noticeable as the “tick tock” sound. The swing of the pendulum controls the beat, and it should ideally occur at the



same point in the swing of the pendulum both sides of center. If the beat occurs closer to one side of center than the other, the movement is said to be out of beat.

This part of the set-up of the clock should be done with the clock sitting on a level surface, Figure 5. An adjustable, level board is useful, but any

surface that is known to be level will work. Setting the beat is done by slightly bending the crutch wire, Figure 6, in such a manner that the crutch foot is moved towards the side with the longest pause after the beat. So, with a clock having a pendulum moving



left-right, left-right and a beat sounding like “tick, tock, pause, tick, tock, pause,” the crutch wire should be slightly bent towards the right. The beat should sound even, like a metronome, without any limping sound.

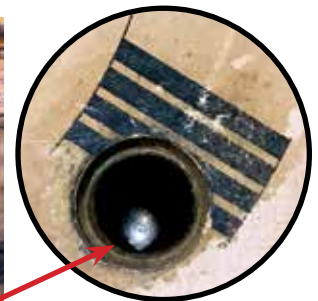
Those of us with poor hearing can use a more empirical method. The evenness of the beat, or balance, can be determined by carefully moving the pendulum right or left, just until the beat occurs, and then letting it go. If the beat occurs as the pendulum moves the other direction, repeat the process by moving the pendulum to the opposite side. If at any time the released pendulum doesn’t produce a beat,

the movement is out of beat and must be adjusted. The goal is to have the swinging pendulum produce a beat when carefully released in both directions. Using this method, the crutch wire should be bent opposite the direction of the side that doesn’t produce a beat.

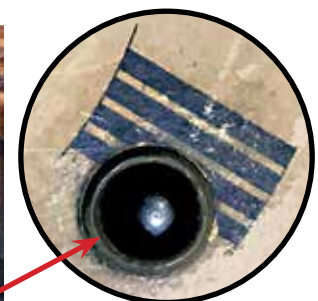
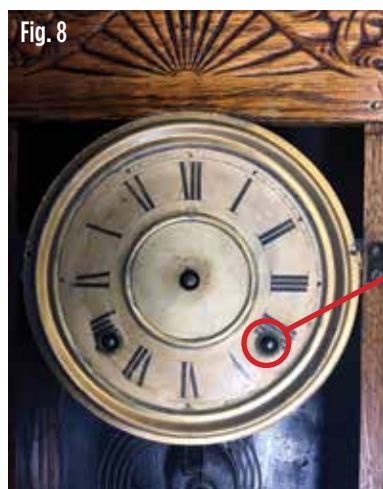
A variety of electronic tools are available that can aid in setting the beat. Amplifiers and timing machines are useful but not essential.

Dial Installation

Installing the dial may seem straightforward, but there are always problem clocks lurking around that can cause setbacks. The dial must be carefully aligned so that the center shaft and wind arbors are centered in their respective holes. Shifted movement feet and/or multiple dial screw holes can make this a frustrating endeavor. If things don’t line up, it is often a result of the dial screws being in the wrong holes, Figures 7 and 8.



Poor dial alignment.

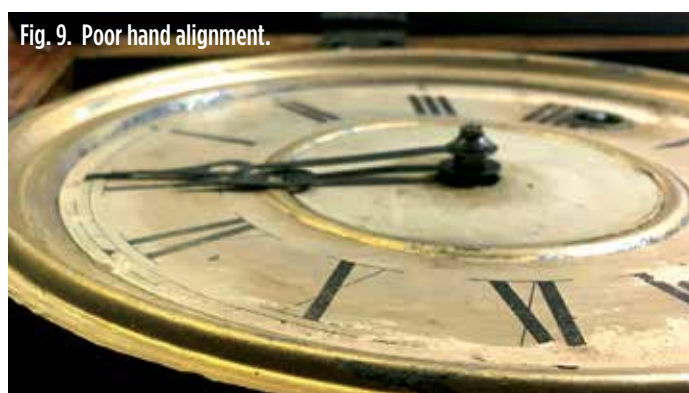


Acceptable dial alignment.

Installing the Hands

Install the hour hand and use the minute hand to rotate the center shaft until the strike is released. Once it is determined where the strike release point is, the minute hand may be installed so it is pointing at the 12. The hour hand can be moved so it is underneath the minute hand and both are aligned at the 12. This will position the hour hand so, when the minute hand is rotated, the hour hand will be pointing properly all around the dial.

The clearance between the hands and the dial, as well as each other, is something that should be carefully noted. Reshape the hands and/or position the hour hand on the hour pipe to correct any problems, Figures 9 and 10.



Synchronizing the Strike

Setting up the clock so the strike matches the time can be done several different ways. There are positives and negatives to each.

Move the hour hand to the number just struck. While this method is fairly simple, it will create a problem when the hour hand gets loose and gravity causes it to always point at 6. It can be difficult to push the hour hand back into place without first removing the minute hand.

Move the minute hand rapidly around the dial. Doing this will advance the time without giving the strike train a chance to complete the sequence. The problems with this method are the risk of breaking or bending the minute hand, levers getting jammed or pins broken, and the difficulty in getting the strike synchronized due to the hit-or-miss nature of the method.

11-9 Method. Move the minute hand up past the 11, but not all the way to the 12, and listen for the strike train to go into warning. Move the minute hand backwards to the 9 and the strike train will be released. Repeating this process will advance the strike by half an hour, or by one hour if there's no release at the half hour. The disadvantage of this process is that it can be time-consuming. However, there are several advantages: it is easier on the movement; it is a lower risk to the hands; and it can be easily controlled.

Rating the Clock

The final step in the setup of the clock is to adjust the position of the pendulum so the clock will keep time. Spring-driven movements suffer from isochronal error. This is the error in rate caused by the difference in power from when the mainspring is fully wound to when it is unwound. In some American mantel clocks, the error in rate can be as much as 15 minutes per week. Adjusting the rate for the best day-to-day run on a clock with large isochronal error will cause a great deal of frustration.

It is best to adjust the rate for the best run over a week rather than over a single day. The clock may be fast at the beginning of the week but will slow down at the end and be zero minutes fast/slow after seven days of running. As with setting the beat, a timing machine is useful but not necessary.

Endnotes

1. LaBounty, David J. *The Levers of American Striking Movements*, 2001. www.abouttime-clockmaking.com/downloads/Levers-2.pdf
2. LaBounty, David J. *Alarms of American Mantel Clocks*, 2007. www.abouttime-clockmaking.com/downloads/Alarms%20of%20American%20Mantel%20Clocks.pdf
3. LaBounty, David J. *The Recoil Escapement*, 2007. DVD Format. www.abouttime-clockmaking.com/ClockClass/The_Recoil_Escapement.html
4. LaBounty, David J. *The Half-Deadbeat Escapement*, 2007. DVD Format. www.abouttime-clockmaking.com/ClockClass/The_Half-Deadbeat_Escapement.html
5. LaBounty, David J. *The Brocot Escapement*, 2009. DVD Format. www.abouttime-clockmaking.com/ClockClass/The_Brocot_Escapement.html

Instructions to the Customer

The above detailed instructions may be beneficial to the professional clockmaker, but the average customer will start to tune out after the first few sentences. Since it is important that the clock owner not be afraid to use the clock, less-detailed operating instructions should be given for each clock returned.

- **Remove the pendulum any time the clock is moved.** Leaving the pendulum on the movement could damage the clock, and knock it out of beat, if the pendulum is allowed to bang around.
- **Put the clock on a solid and level surface.** The clock will run best if it isn't on a rickety surface that can get jostled.
- **Hang the pendulum.** Customers should be shown where to hang the pendulum and allowed to install it themselves.
- **Wind the clock.** The clock should be wound once per week for an eight-day clock and once per day for a 30-hour. For an eight-day clock, pick a day and wind the clock on the same day every week. If forgotten, the clock has a grace period before it will stop. When winding, push the key all the way in, turn, and gently let it back against the stop. Don't get in a hurry or let the key snap back. Wind until the mainspring is fully wound—until no more “clicks” can be made. Don't over-stress the key by trying to force the mainspring beyond fully wound. Wind both sides; it doesn't matter which side is done first. Show customers which direction to wind and allow them to wind one side. If it's a double-ended key, explain what both ends are for. The small end of the key is for rating the clock, and the large end is for winding.

Customers will often ask if they should let the clock run down or if they should stop it when they are gone on vacation. Spring-driven clocks should be allowed to run down. The mainspring has a “memory.” If a spring is left fully wound for a long period of time, it will become set and not unwind fully. They should expect the strike to be off when they return and need to be re-synched.

- **Start the clock running.** A pendulum that can be accessed from the front may be given a gentle push to start it swinging. Where the pendulum is only accessed from the rear, like in a tambour mantel clock, lifting one side of the case and setting it down will start the pendulum.
- **Listen for an even “tick tock” sound.** Have customers listen for an even beat and then lift one side of the clock so they know what it is like to be out of beat. The clock needs to be in beat or it won't run well. It may be necessary to shim one side of the clock in order for the clock to be in beat.
- **Synchronize the strike.** Show customers how to synchronize the clock. The 11-9 method is recommended. Allow them to do it several times.
- **Set the clock to time.** The minute hand may be moved backwards a few minutes only, but stop if any resistance is met. It is best to move the minute hand forward to set the time, stopping at each hour and half-hour to allow the movement to finish striking. If the movement isn't allowed to finish striking, it will get out of synch and must be re-synched.
- **Rate the clock.** The clock will keep a different rate in different locations. This is due to temperature, humidity, and a number of other factors. So, the clock may run a little fast or slow when it is set up at home. The rate can be changed by using the rating nut (or fast/slow adjuster on the dial if so equipped). Turning to the right makes the clock go faster and turning to the left makes it go slower. For an eight-day clock, adjust the rate after the clock has run a week.

2017 Annual CONVENTION

The treasures of
AWCI await you at
Tampa Bay



AWCI'S 2017 Annual Convention Tampa, Florida October 4-7

Look for more details in upcoming issues of *Horological Times* and on Facebook. Mark your calendar now! Visit us on Facebook....



Have you always wanted to learn from the experts, the historians, the scientists?



Now you have the chance to do just that! Thanks to the Horological Society of New York, AWCI members can watch videos of the fascinating lectures presented at HSNY. The lineup of speakers is eclectic. Here are the distinguished speakers you can watch to date.

François-Paul Journe on The History of the Calendar

François-Paul Journe, Jack Forster, Pierre Halimi Lacharlotte, and Keith Lehman discuss the development of calendars and their importance in human societies from early times to the present. The first watches showing the date were made more than two centuries ago, today they have evolved into ultra-complicated timepieces.

Dr. Demetrios Matsakis, Chief Scientist for Time Services at the US Naval Observatory, on the Nature of Time

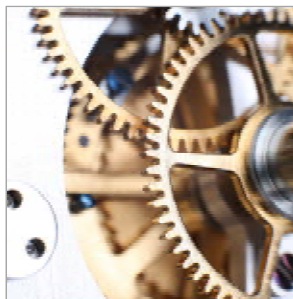
Dr. Matsakis lectures on the nature of time, beginning with Isaac Newton's laws of motion and gravity and progresses through history to Albert Einstein's theory of relativity. He also discusses causality and the concept of worm holes that we often see depicted in movies. A lively Q&A follows this thought-provoking lecture.

Michael Friedman, Historian for Audemars Piquet, on Intertwining Roots—Watchmaking, Artisanship, and Technology

Michael Friedman explores how watchmaking's intertwined relationship with art and technology has been central to its evolution during the past 500 years. He examines key moments during the 1500s, the mid-1600s, the early 1800s, the Industrial Revolution, the mid-20th century, the quartz era, and the present day. Friedman sheds light on why mechanical watches continue to galvanize collectors and enthusiasts worldwide, and why this is a golden age of highly creative and innovative watchmaking.

More videos will be added as they are created. The Horological Society of New York has been giving this lecture series for 150 years. Recently they have welcomed notable horologists such as watchmakers Roger Smith and Kari Voutilainen, and Rory McEvoy, Curator of Horology at the Royal Observatory. We look forward to sharing in this outstanding lecture series!

To watch the videos, go to www.awci.com/hsny or www.hs-ny.org.
Check your email for the password.



“SWISS MADE” REQUIREMENT CHANGES FOR 2017

By Aaron Recksiek, CW21

In the United States, 2016 marked a big year for the transparency behind the origin of manufacture in the watch industry. The Federal Trade Commission (FTC) issued letters to many watch brands requiring changes to their hallmarks and marketing materials, some of them having used a version of “Made in the USA” for several years. This sparked some brands to respond by publicly releasing component origin information to satisfy the modern consumer’s demand for transparency. The “Made in the USA” or “American Made” designations remain among the strongest marks of origin in the world. The FTC states that “all or virtually all” of the product, regardless of the industry, be made in the United States to receive the designation. The line that defines “virtually all” is far from clear and is apparently something that is decided on a case-by-case basis. I have spoken with many representatives of US-based watch brands, and they feel like that puts the watch industry in this country at a tremendous disadvantage in comparison to the rest of the industry worldwide.

On January 1, 2017, the Swiss watch industry will be required to take a step towards strengthening the “Swiss Made” label. The Swiss parliament passed new regulations in 2013 to change the general requirements of products receiving the designation from the current standard of 50% production in Switzerland to minimum requirements of 60%

by value. The new requirements will also apply to the entire watch, whereas previously a watch with a mostly Swiss movement and case made in Asia could qualify as “Swiss Made,” if the cost of the movement outweighed the cost of the case components. The Swiss Federal Institute of Intellectual Property, the federal entity in charge of guarding the integrity of the “Swiss Made” label, will spearhead the effort to educate the brands and police the requirements. Of course, there are individual stipulations on products within each industry segment, and the specific changes to the “Swiss Made” watch designations were made with recommendations from the Federation of the Swiss Watch Industry FH.

In addition to increasing the value of components produced within Switzerland and applying these requirements to the entire watch, the FH recommended tighter requirements not necessarily associated with the production cost of components. The existing requirements state that the movement must be cased up, and the final inspection of the timepiece must take place in Switzerland. The new requirements add to the existing criteria, but include that all technical development of the watch and watch movement must be carried out in Switzerland. This is aimed squarely at the emerging smartwatch industry, where much of the technical development has taken place in Silicon Valley and other high-tech epicenters.

Some of the ordinances are being rolled out progressively as to not disrupt too much or put undue financial pressure on some watch brands. For example, the case and certain case components can be excluded from the calculation of manufacturing costs until the end of 2018 if the components were already in stock in Switzerland at the time the new requirements come into effect on January 1, 2017.

It is important to note that most of several hundred members of the watch federation support these new requirements, especially the most powerful

member, The Swatch Group. Their hope is that this will lead to higher consumer confidence in Swiss products and thus strengthen the overall “Swiss Made” brand.



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Aaron Recksiek is an independent watchmaker in Salt Lake City, Utah. He is a graduate of the 2008 WOSTEP class at the Lititz Watch Technicum.

In Summary

By Aaron Recksiek, CW21

Patek Philippe Ref. 1518 Sets Record at Phillips Bacs & Russo Auction in Geneva

On November 12, 2016, the Patek Philippe ref. 1518, in stainless steel, became the most expensive wristwatch ever sold at auction with a final sale price of \$11,136,642, including buyer premium. The watch was one of the first mechanical chronograph perpetual calendars ever produced. It is only one of four of that model, in that configuration, known to exist. The auction also featured two other ref. 1518 in rose gold and yellow gold, which sold for \$1,489,813 and \$602,840 respectively.

www.forbes.com

Compagnie Financière Richemont SA Announces 200 Job Cuts and Elimination of CEO Position

Richemont contacted union reps to announce they will be cutting 200 watchmaking jobs in Switzerland amid the downturn in global watch demand. The cuts will come mainly from the top-tier Piaget and Vacheron Constantin brands. This adds to the 100 jobs they cut earlier this year, with much of those coming from their biggest brand, Cartier. Also, in a corporate managerial shift, Richemont will be eliminating the primary CEO position when the current CEO Richard Lepeu retires next year. It is the biggest managerial shift for the company since 2009. Instead

of a CEO overseeing all the brands, the manager from each brand will report directly to the company's board of directors. Richemont is a publicly traded company on the SIX Swiss Exchange and the JSE Securities Exchange. It is the parent company of many luxury watch brands, the most notable being A. Lange & Söhne, Baume & Mercier, Cartier, IWC Schaffhausen, Jaeger-LeCoultre, Montblanc, Officine Panerai, Piaget, Roger Dubuis, Vacheron Constantin, and Van Cleef & Arpels.

www.jckonline.com/2016/11/04/richemonts-ceo-resign-wont-be-replaced

www.bloomberg.com/news/articles/2016-11-14/richemont-plans-to-cut-more-than-200-swiss-jobs-amid-watch-woes

Jewelry Store Owner Killed During Robbery in Milwaukee

Leopoldo Vela was shot in the chest and killed during a robbery at his jewelry and pawn shop, Corona Jewelry, on October 31, 2016. The Jewelers' Security Alliance (JSA) is offering a reward of up to \$3,000 for information leading to the arrest of the perpetrator. You can contact the Milwaukee Police Department at 414-935-7411 or the JSA Reward Hotline at 800-325-1883 with information relating to the crime. This is the second industry-related homicide this year, the previous being a sales rep who was robbed at a gas station in Arlington, Texas.



Jewelers' Security Alliance

www.jckonline.com/2016/11/04/milwaukee-jeweler-killed-jsa-offers-reward

Serial Jewelry Thefts Reported Around the Country

There have been at least five similar thefts reported in different states around the country ranging from \$4,000 to \$20,000 in monetary damages. The thefts are believed to be carried out by Romanian gypsy gangs, according to the Jewelers' Security Alliance, but it is unclear if the groups are related in any way other than the similarity of the crimes. The thieves usually show large amounts of cash to put the sales staff at ease while asking to see many items at a time. The sales staff are then distracted and items are concealed and taken.

The thieves then find a way to leave without completing the transaction, putting items on hold, for example.

The Jewelers' Security Alliance advises stores to only show one item at a time and always keep the showcases locked except to remove or replace an item.

www.jckonline.com/2016/10/20/jewelers-falling-victim-distraction-theft-gangs

TAG Heuer Expands to Silicon Valley

TAG Heuer has opened a research and development arm in the heart of the international technology hub, becoming the first Swiss watch brand to do so. The office is located on the Intel Santa Clara campus and will be responsible for furthering its venture into the smartwatch market in collaboration with Intel and nearby Google. CEO Jean-Claude Biver was quoted as saying, "The connected watch will definitely be a permanent part of the TAG Heuer brand." TAG Heuer has sold 60,000 connected watches in less than a year's time. The brand will be announcing a new smartwatch in the spring of 2017 with a planned production of approximately 150,000 pieces per year.

www.bloomberg.com/news/articles/2016-11-03/tag-heuer-invades-apple-s-home-turf-with-silicon-valley-office



Jewelers' Security Alliance

Nepali Mountain-Guide-Turned-Watchmaker, Lapka Thundu Sherpa, Dies in Avalanche



Thundu was a watchmaker for the Kobold Watch Company in Kathmandu, Nepal. Kobold's founder, Michael Kobold, brought Thundu to Pennsylvania to learn watchmaking after he and another guide, Namgel Sherpa, helped Kobold and his wife on an Mt. Everest expedition. The workshop was completely devastated in the April 2015 earthquake that shook the region, bringing the workload to a trickle. Thundu had returned to mountaineering, the thing he was most comfortable doing. He was working as a guide for an expedition on Mt. Ama Dablam, just south of Mt. Everest, when a magnitude-5.4 earthquake caused large ice blocks to dislodge. One ice block struck Thundu. A helicopter rescue was called in, but he was pronounced dead on the flight to the hospital. No one else in the expedition party was killed, but another climber was injured. Donations are being collected to support Thundu's family. To donate please visit:

www.crowdrise.com/benefit-for-family-of-thundu-sherpa#the-story



Aaron Recksiek is an independent watchmaker in Salt Lake City, Utah. He is a graduate of the 2008 WOSTEP class at the Lititz Watch Technicum.



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ALL IN GOOD TIME: REFLECTIONS OF A WATCHMAKER (EXPANDED EDITION)

George Daniels
London: Philip Wilson Publishers, 2013.
Reviewed by Daniel Benson, CMW

Reviewed by Daniel Benson, CMW

Is it too much of a leap to assume that every reader of HT knows of George Daniels? Some of you may actually have met him when he visited AWCI's annual meetings or when he was conferred an honorary fellowship of AWCI. If you haven't heard of Daniels, or even if you have, you need to read this memoir. Originally written by Daniels himself and published in 2000, this expanded edition includes two short additional chapters by his friends Roger Smith and David Newman, penned shortly after Daniels's death in 2011.

Arguably, George Daniels was the greatest watchmaker of the 20th century—perhaps the greatest watchmaker since Breguet (whom Daniels greatly admired and was his avowed inspiration). Of course, there are many exceptional watchmakers around the world making new, innovative, and extraordinary timepieces (and the number continues to grow). But with due respect to their skills and achievements, Daniels stands out amongst them for sheer artistry, force of character, creativity, and tenacity.

Is this showering of praise too much? I don't think so, after reading *All in Good Time* again. Part autobiography and part manifesto, the breadth and depth of the man and his single-minded obsessiveness leaps from the pages; the effect is impressive, but not always flattering.

On the autobiographical side, we read that Daniels comes from very humble beginnings; one of eleven children, he endured a harsh and indifferent childhood, and was pulled from school to work in a mattress factory at a young age to supplement the family income. At the other end of the story is the man who became a Commander of the British Empire, a

collector of fine watches and Bentley motorcars, and the learned author of several definitive books on watchmaking.

As a manifesto, however, the book really shines. This is where we meet Daniels as designer and maker of extraordinarily fine and beautiful watches, we encounter his creativity as horological visionary, and glimpse his keen mind and strength of character.

Through the 1960s Daniels had established himself as a watch repairer in London. But, he was quickly bored and longed for new challenges. He satisfied that desire by making a pocket watch entirely of his own design and skills. From that grew the desire to introduce fresh innovations to the mechanical watch, even as the mechanical watch itself was in danger of extinction.

By the 1980s production and development of the mechanical watch was in free fall, particularly in the low end of the market where mechanical watches had been almost entirely supplanted by cheap quartz watches. The industry was literally collapsing, particularly in Switzerland, as longstanding firms disappeared almost overnight.

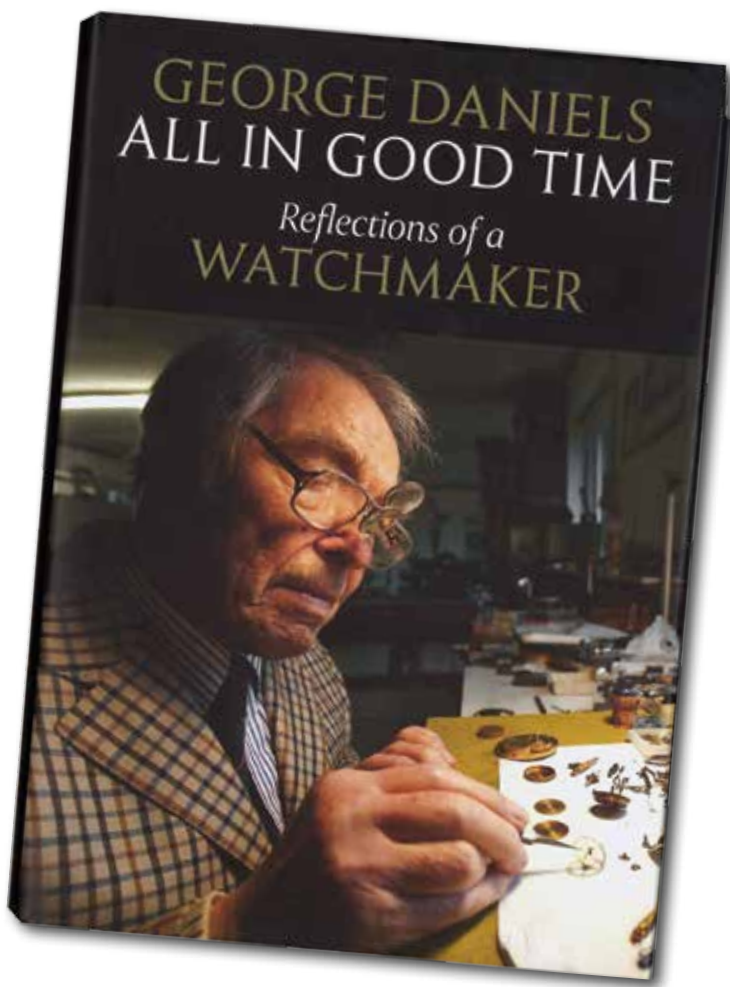
Against this tide, Daniels was unwavering in his commitment that mechanical watches had a future, and that future rested on innovation that ensured reliability and accuracy beyond what the venerable Swiss lever could offer. The solution was in the now well-known Daniels co-axial escapement, which eliminated the Swiss lever's weak spot, the need for lubrication.

More than a third of *All in Good Time* describes the development of the co-axial escapement. Daniels built numerous pocket watches from scratch and had

modified various third-party production wristwatches, all with the co-axial escapement. They performed brilliantly (often for decades with no changes in balance amplitude or rate, without servicing of any kind). When compared to a quartz watch that inevitably, but without warning, committed “suicide” when the power cell died, it was clear (at least in Daniels’s mind) which was the superior technology (the price difference, apparently was not a relevant factor!).

Yet, for years Daniels met nothing but roadblocks, closed doors, and condescension as he shopped his invention to different manufacturers, seeking one that was willing to adopt the co-axial escapement. His description of the meetings with executives, production managers, and “mere technicians without passion,” are almost comical, and give a fascinating glimpse of what happens when an industry beleaguered by tradition and drowning under a tsunami of technical upheaval meets a man of uncompromising vision and obsessive belief in his own invention. To be sure, there is enough hubris on both sides that it is a miracle that a deal was ever struck to bring the co-axial to market at all.

The title *All in Good Time* seems to capture Daniels’s outlook on life. He was clearly a driven, obsessive man with a singular vision; his natural talents, combined with that drive and obsessiveness, enabled him to make his vision a reality. And, he understood that such a vision can only be realized in its own good time. Watchmakers reading this book should find inspiration in its pages; not, perhaps that they should set out to design and build beautiful watches from scratch (although they may wish to do so!), but simply to be the best watchmakers/repairers that they can be. After all, that is simply what George Daniels set out to be.



All in Good Time can be purchased through online booksellers in paperback or e-book formats or through your favorite independent bookseller. It is also available for loan from AWCI’s library. Both the first edition (2000) and the expanded edition (2013) are copiously illustrated with plates and diagrams, and contain the full text of Daniels’s autobiography.

Also in 2013, a biography by Michael Clerizo entitled *George Daniels: A Master Watchmaker and His Art* was published. It will be interesting to compare the biography with Daniels’s autobiography for a different perspective.

Daniel Benson is a graduate of watchmaking at George Brown College, Toronto, and a first-place graduate of WOSTEP in Neuchâtel, Switzerland. As well as having a career in horology, Daniel has worked extensively in book publishing and communications.

THE Amer

Making Time

MKII

By Aaron Recksiek, CW21

MKII, or Mark 2, is often the term used to reference the second version of a product, especially when it comes to military hardware. So, it's appropriate that the military-inspired watch brand MKII is sometimes referred to as the "King of Homage Watches." Homage watch means that certain aspects of the design are similar in look and pay tribute to an existing, highly collectable watch made by one of the big brands. While they have similar design features as other watches, they also have distinct details to firmly distinguish themselves as their own brand with a cult following of collectors. Every time they announce a new model, people are willing to wait several months and sometimes even years to receive the final product.

Bill Yao, a Pennsylvania native, is the owner and founder of MKII and virtually a one-man show behind all day-to-day operations. While Yao was attending The Wharton School in Philadelphia to achieve his MBA, he started a little side gig where he would have custom parts made to modify Seiko Diver watches. If you have ever stumbled across one of the collector forums online dedicated to Seiko "mods," you would

know how serious and expansive this market is. On some of the very first watches, Yao remembers putting \$400-\$600 of modifications into a \$200 watch. After doing watch modifications for a year or so, he decided that he had carved out enough of a legitimate market

to start his own brand. Previously being an investment banker in New York and working 80-hour weeks, Yao thought of spending those 80 hours creating something, working with his hands, and doing something he loved was a welcome proposition.

Not being a classically trained watchmaker was a little challenging at first. After working with several watchmakers over the years and

practicing certain skills, Yao has been able to combine his already intensive attention to detail with the necessary abilities to assemble many of the watches himself. Most of the models he sells with Swiss movements require assembly of all case, dials, and hands in his Wayne, Pennsylvania, workshop. He also sells several Japanese-movement-based models that come pre-assembled overseas, as part of an expanding "ready-to-wear" line. Admittedly, Yao would love to produce components in the United States, but the



ican *Spirit*

pieces Again

quality and precision of manufacturing required is not available at his desired price point.

The quality-control procedures that each watch undergoes are essential to the success and quality that MKII delivers. The overriding theme of the MKII brand is the total attention to detail on the quality of each watch leaving the facility. This is a solid philosophy to have but has sometimes been taxing on the production numbers. For example, one of Yao's most famous watches, the Kingston, had notoriously long wait times. The collector would reserve a watch with a deposit and in some cases not see it for a couple of years. This didn't keep the limited-run watch from becoming highly sought after; it most likely added to the desirability. The Kingston has been known to sell on eBay for two or three times the original retail price. Partly in response to the delays in production, and for the collectors who didn't quite understand all that went into his process, Yao and his wife came up with the idea to create a photo journal series that can be found on his website, which documents the step-by-step procedures of his watch assembly.

The current production capability of MKII is between 1,000 and 2,000 watches annually, and they want to grow as organically as possible. The growth of the brand has relied heavily on the satisfaction of customers

and word of mouth from one fan to another. They want "a reason to exist," meaning if the demand and desire for the watches don't exist, they don't feel the need to bury the substance of the brand underneath a marketing machine.



Bill Yao, founder of MKII

The question of the validity of homage watches and how they fit into the broader landscape of the watch industry can sometimes be a polarizing subject, and one that Yao often has to answer. MKII certainly does not want to imitate other watches. Yao has been quoted as say-



Bill Yao at his work bench making minor adjustments and fitting a bracelet to a new watch.

ing, “Fundamentally, the world doesn’t need another watch company. Anybody can create copies, and if I didn’t feel we were adding a new chapter to the story and design of the historic references, I would never have started MKII. You know it’s right when the watch looks like everyone imagined it should, while simultaneously being different in almost every detail. If you sat one of our watches next to the vintage piece it was inspired by, they would look like cousins, not twins.”



Currently MKII only sells watches online through an e-boutique. All the models produced can be viewed with detailed photos and specifications lists. You can also be put on the waiting list for watches that have sold out due to their limited number of pieces produced, or view the

status of an order that has already been placed. With the new collections, such as the Hawkinge, there are plans to expand the points of sale beyond the Internet and partner with watch dealers to make the watches available for the first time at certain brick-and-mortar locations.

Yao is an avid supporter of the independent watchmaker, and he supplies all spare parts to watchmakers on an exchange basis and at a discounted rate. If you browse the MKII website, you’ll notice the FAQs refer customers to the AWCI website if they are looking for a local watchmaker. MKII is also looking for a full-time watchmaker to join their team. If you are interested or know of someone who is interested, you can contact Yao through email: info@mkiiwatches.com or social media: Facebook: [@mkiiwatches](https://www.facebook.com/mkiiwatches)/Instagram: [@mkiiwatch](https://www.instagram.com/mkiiwatch)

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Aaron Recksiek is an independent watchmaker in Salt Lake City, Utah. He is a graduate of the 2008 WOSTEP class at the Lititz Watch Technicum.

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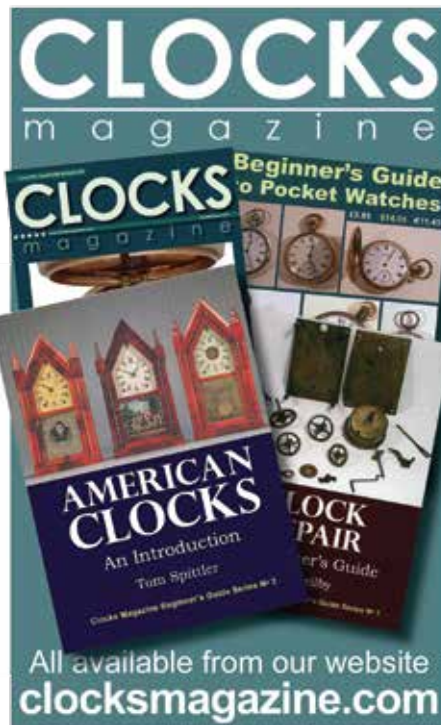
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FROM THE WORKSHOP

By Jack Kurdzionak, CW21, FAWCI

THREE NEW YEAR'S RESOLUTIONS

If a watchmaker can make three resolutions for 2017 and carry them out, that watchmaker will be well on the way to a more profitable year than that of 2016. None of these resolutions involve any significant expense other than an investment of time.

1. I WILL CLEAN UP MY WORKSPACE

An organized work area is a more efficient place to accomplish repairs. More efficiency means getting more done in the same amount of time. Efficient utilization of time yields more income per unit of time. People who study human behavior may be able to explain why we accumulate stuff, pile up tools and supplies on our small bench tops, and seldom return tools and supplies to their respective storage areas after we use them. Without trying to figure out why we do that, we just need to recognize that it happens to many of us. Did you ever notice that a clean bench top in the morning shrinks in the course of the workday until it is literally covered

with stuff so that you work right at the edge of the bench closest to you at day's end?

The first step is cleaning the bench top throughout each day and putting all tools back in their assigned place after they are used. Tools that are in constant daily use are the ones that need to be kept at hand in a convenient location. Tools such as tweezers, screwdrivers, oilers, and movement supports need to be stored in the bench or nearby. Notice, I said "stored." Too often we use the bench top as both a workspace and a storage space. The bench top is a work space and a valuable one at that. Cabinets and drawers are storage spaces. Use them and free up bench top space. Without costing a fortune, a mechanic's rollaway tool chest makes a great place to store watchmaking tools while keeping them close by. Because it is on wheels, it can be moved as needed to any convenient position and it makes cleaning the floor a simple task. The less an item is used, the further away from the bench top it should be stored.

2. I WILL REVIEW MY PERFORMANCE

An annual employment performance review with a supervisor can be stressful, especially when it involves any changes to one's compensation, benefit package, and/or employer's expectations. If the review is well done, both parties understand each other's expectations and will endeavor to meet those in the coming year. Self-employed watchmakers, who make up a substantial portion of our membership, need an annual performance review, but seldom subject themselves to one.



Excuses include, “Why bother with that? I do not have an employer. I work for myself.” In fact, those excuses illustrate the need to regularly set aside some time to analyze your employment conditions. Too many self-employed people minimize the multiple set of skills they have that permits them to work for themselves. Consider the watchmaker in a service facility who repairs watches while the cleaning staff keeps the workplace clean, customer service handles the clients, and supervisors manage the facility. The self-employed watchmaker/business owner does it all. Manages, repairs, cleans, and deals with customers—and must do these tasks well if the business is to succeed.

Self-employed watchmakers need a regular, honest review of themselves with regard to customer satisfaction, professional development, working conditions, and compensation and benefit packages. It is not enough to just say you will raise your prices every year. That may or may not solve anything. You need to examine your business and see how well it meets or exceeds commonly accepted industry standards. Is it standing still, falling behind, or constantly improving? To answer these questions, you need to keep abreast of industry requirements. Are you taking continuing education classes to maintain and grow your watchmaking skills? The cost of tuition, travel, and time away from your business should be considered another mandatory cost of operating your business, just like rent, utilities, insurance, and other expenses.

Are your customers pleased with your services? There are plenty of online sites that rate small businesses such as yours. Check the Internet reviews to see what your customers are saying about your

business. If you have a large number of negative reviews, what are you doing to improve those reviews? No one can please everyone, but you can try to improve those reviews to an acceptable level.

All too often, I have heard watchmakers advise each other to simply raise their prices to solve whatever problems they are addressing. Pricing adjustments need to be rationally based rather than just randomly made. Pricing considerations include but are not limited to:

- a.** Fixed costs
- b.** Salary and benefits
- c.** Professional development expenses
- d.** Equipment and inventory depreciation costs
- e.** Cost of living expenses
- f.** Having the business earn an annual profit

You will need to take all of the above into consideration to make a pricing model that will meet your needs and expectations. Merely increasing prices across the board is a broad-based approach that may be excessive for some categories of work while falling short for other services. You need to be aware of the costs of doing business and paying yourself.

This is not an easy task, which may explain why for many years I have spoken to watchmakers about doing a business review, both individually and in groups, only to hear them say, as if in unison, “You do not understand our local market. My customers will not pay that. I have trouble collecting as it is now. I cannot get that much for my services.” Those comments might be valid if they came from watchmakers in a depressed, downtrodden location, but they came from watchmakers in some of the largest and wealthiest metropolitan areas of the

country. Orville Hagans (one of AWCI's founding members) told me in 1975 that he heard those same comments in 1935, and he bluntly said to naysayers (as was his way of speaking), "If you cannot make a living as a watchmaker, get another job. It makes no sense to work if you cannot earn a living."

3. I WILL ORGANIZE MY SPARE PARTS

Many watchmakers have a sizeable asset in the form of a collection of spare parts in their shops, many of which are now discontinued, and for some reason neglect to utilize that resource. I was a customer of a Midwest material dealer named Harry, who operated his business from home. Harry almost always had the part I needed, even those that were then obsolete. Harry had no computer but always could find a part quickly and respond to any inquiry within an hour or two. Some years later after Harry passed away, another material supplier told me that Harry did not have a huge inventory, but that he was a great organizer and knew where every part was stored and could quickly determine if he had a part.

How many times have you bought a part only to learn later that you had several more of them hidden away somewhere in your workshop? It may not be the best use of your time to inventory every part hidden away in your shop, but you can begin an inventory system today for every part you buy from now on.

We use a QuickBooks program to track our inventory, utilizing industry-standard parts references, but that is probably more than necessary for a small shop.

A simple envelope system should suffice to manage your inventory. Each envelope can be dedicated to a single caliber with the contents listed on the



envelope. Envelopes can be organized alphanumerically in a small cabinet. Parts organized in the envelope system are easily located. Any part arriving from a supplier immediately goes into its envelope and not tucked away in some drawer. Parts already kept in the shop can be put into the envelope system as time permits. You only need to inventory what you think you will use, not all the obsolete stuff you may never need.

As one material dealer told me years ago, "I have hundreds of thousands of spare parts that only have value when someone orders them." All that stuff you have in shoe boxes is valuable only if and when you need it. Otherwise it is just stuff, and it is a waste of time to inventory all of it with the idea that someday it may be needed. An organized inventory of spare parts prevents having to repeatedly look through a pile of unorganized stuff hoping to find a needed part. Think of Harry who knew that his parts were valuable only because he knew where they were stored.

Jack Kurdzionak, watchmaker and watch material specialist, owned a Boston-area watch sales and service shop for 40 years. He has a BS (Northeastern University, 1967) and has studied at ETA, WOSTEP, BHI, SGUS, and AWCI, and works for Eckcells Watch Materials.



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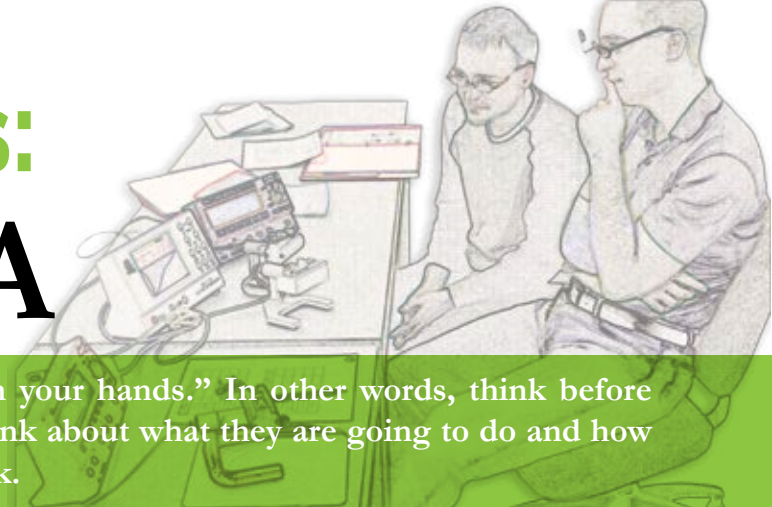
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Sit on Your Hands: Horology Q&A



A wise horologist once said, “You should sit on your hands.” In other words, think before you act. Good watchmakers and clockmakers think about what they are going to do and how they’re going to do it before they begin their work.

WHAT TOOLS OR PROCEDURES DO YOU USE TO PREVENT SMALL SPRINGS OR PARTS HELD BY SPRINGS FROM FLYING AWAY?

I use an acrylic stick to hold the component, and control release with tweezers. If I want to be really careful, I will carry out the disassembly procedure in a clear plastic bag.

—Webb Robt

Pegwood and tweezers for the win.

—Coates A Shaun

I use either plexi-sticks, pegwood, or a leather buff, depending on which components/calibers/procedures I'm working on.

—Matthew Schloemer

While I was at the ETA factory training in Switzerland, I learned techniques to prevent spring flying. They have their own in-house Rodico-type compound called “Ivory.” It's white and doesn't leave any spots and is extremely sticky. When a piece of this is attached to either point of the plexi-stick or peg wood, it can hold the spring while you're handling it, preventing it from accidentally flying away. I am not sure if Ivory is sold by usual suppliers, but I am sure any similar compound can be used.*

—Karel Ebenstreit

Strong magnetic placemat?

—George Sharkey

Clock coil springs such as those used on strike train dial-side components can be held in place better when removing one end with a 1/4" plastic or wood rod with a flat-shaped end, like a flat screwdriver blade. Sometimes a pointed tweezer can be inserted up in one end of the spring for a good grip.

Probably the most popular small part to fly away is an E-clip. When they are pushed off a post, their spring tension can launch them. I started using a product made by Loctite called Fun-Tak, available in home and office sections of most stores. It has a strong but reversible holding property that is used to adhere posters, pictures, etc., on walls. It is removable with no damage. I put a piece of 1/4" x 1/2" Fun-Tak on the side of a piece of pegwood or craft stick. I put this in front of and against the E-clip before pushing it off. This will not only keep E-clips from flying off but will hold them and allow easy removal and placement in your parts-cleaning container.

—Bob little

***Editor's Note:** The Ivory that Karel Ebenstreit mentions is called ETA Ivory cleaning product and is available from Beco Technic, www.beco-technic.com.



The Next Question

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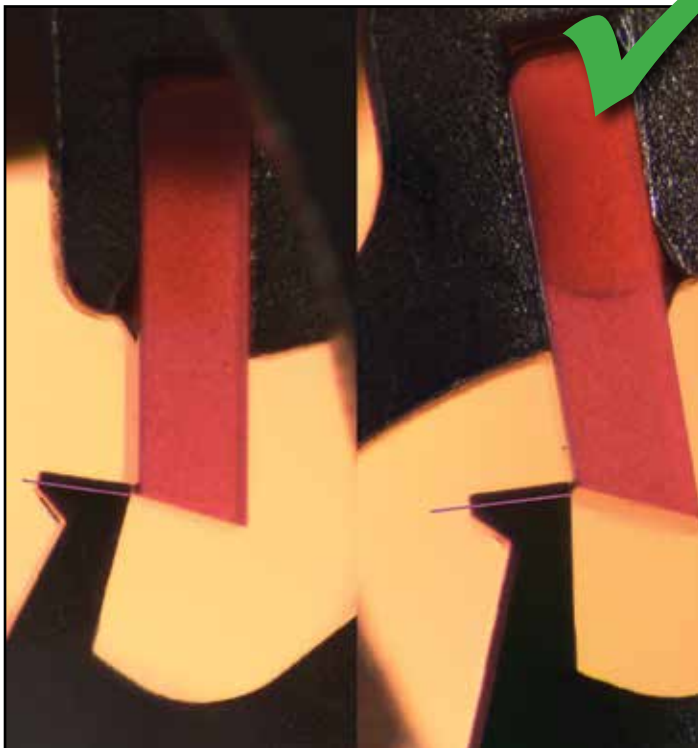
CONGRATULATIONS to our winner, **Matt Schloemer**, who wins a Bergeon 225th anniversary loupe.



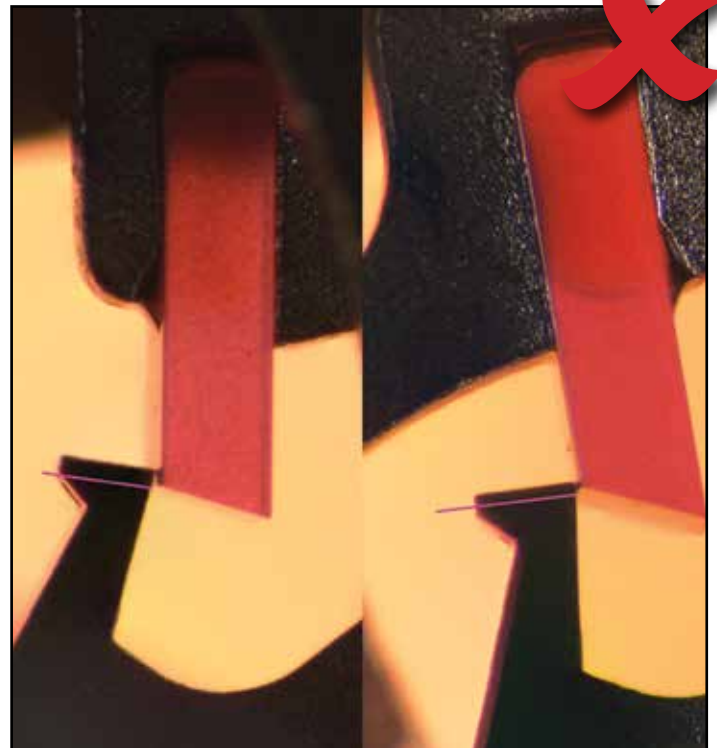
WATCHMAKING EXCELLENCE: CW21 Standards

DROP-LOCK

Drop-lock occurs at the instant when the drop ends and the escape wheel tooth contacts the pallet stone. It is measured as the distance between the corner of the pallet stone and the heel of the escape wheel tooth at the instant the escape wheel tooth contacts the pallet stone. Drop-lock, like total lock, is often expressed in terms of a fraction of the length of the impulse face of the pallet stone. Drop-lock must occur on the locking face of the pallet stone. Drop-lock must be equal on the entry and exit stones; or stated another way: drop-lock must occur at the same distance from the corner on both the entry and exit stones. The drop must not end on the impulse face of the pallet stone because that could cause the watch to have poor amplitude.



Drop-lock on entry pallet equal to drop on exit pallet.



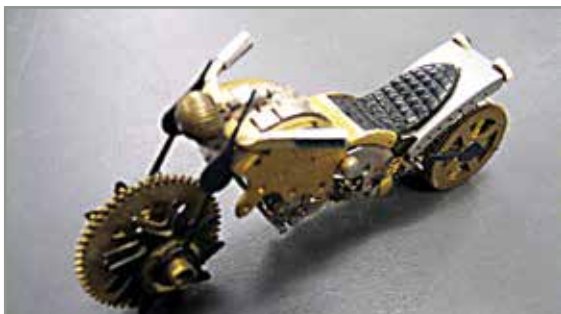
Drop-lock on entry pallet deeper than drop on exit pallet.

Minnesota Clockmakers Guild (MCG)

For the December meeting, MCG welcomed Brent Glomann, who presented on “Clock Cleaning Methods.” MCG officers were also elected at the December meeting.

For November, gunsmith Larry Dullum presented valuable metalworking tips and techniques that could be useful for clockmakers. He explained how he makes springs with his heat treatment process as well as the process for case hardening. Jeff Pomeroy donated the door prize for November. It was Clock Repair Basics by Steve Conover.

For Show and Tell, Jeff Pomeroy shared the latest Robert Porter book, *Restoring This Old Verge Fusee Watch*. Mark Purdy shared Wizards Metal Polish, a product he uses for polishing metals. Mark Purdy also shared coasters made with old clock parts that he imbedded in molded plastic, and he shared a model motorcycle that he made by soldering together old clock parts.



Mark Purdy shared a motorcycle made by soldering together old clock parts.

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Email	3mgarth@gmail.com
Secretary	Dean Ziegenbein
Phone	952-454-1247
Email	ziegedw@gmail.com



Example of a clock bezel polished with Wizards Metal Polish to give a bright shine to the brass.



Mark Purdy shared coasters made with old clock parts that were imbedded in molded plastic.

Horological Society of New York (HSNY)

The following information was obtained from The Horologist's Loupe, submitted by Walter Pangretitsch, Recording Secretary, HSNY, Copyright©2016. Published by the Horological Society of New York, Inc.; All rights reserved.

Michael L. Friedman, historian for Audemars Piguet, spoke at the December 12 meeting on the topic of “Intertwining Roots—Watchmaking, Artisanry & Technology.” While most objects and technologies

that are used on a daily basis will be upgraded in a matter of a couple years or less, expertly crafted mechanical watches are designed and constructed to last “forever.” This special place that watches hold in the present day is directly connected to the fact that watchmaking is among the most interdisciplinary fields in existence, deeply rooted in various spheres within both the arts and sciences.

Michael L. Friedman explored how watchmaking’s intertwined relationship with art and technology has been central to its evolution during the past 500 years. He examined key moments during the 1500s, the mid-1600s, the early 1800s, the Industrial Revolution, the mid-20th century, the quartz era, and the present day. Friedman shed light as to why mechanical watches continue to galvanize collectors and enthusiasts worldwide, and why this is a golden age of highly creative and innovative watchmaking.

Friedman is an established horological expert, appraiser, curator, lecturer, auctioneer, and producer. Though he is currently the historian at Audemars Piguet, his extensive career in watches and clocks began in 1996 at Willard House & Clock Museum, where he served as assistant curator. In 1997, he joined The National Watch & Clock Museum as curator, where he co-developed 15,000 square feet of exhibition space devoted to the history of time measurement—from sundials to the atomic clock. In 1999, Friedman was named VP & Department Head of Watches for Christie’s in New York. In 2003 he founded MLF Horology, which provided consultant and curator services for international collectors, institutions, and auction houses.

At the November meeting, Dr. Demetrios Matsakis, Chief Scientist for Time Services at the U.S. Naval Observatory, lectured on the nature of time. Dr. Matsakis began with Isaac Newton’s laws of motion and gravity and progressed through

history to Albert Einstein’s theory of relativity. The topic of causality was introduced, along with discussion on the concept of worm holes that are often seen depicted in movies. The thought-provoking lecture inspired a lively Q&A session. While the majority of lectures at HSNY focus on mechanical timepieces, Dr. Matsakis’s lecture was a refreshing change of pace.

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Editor	Stephen Noble

George McNeil’s Potomac Guild

(A Guild of the Horological Association of Virginia)

The December 6 meeting was the annual Christmas dinner and gift swap, with the usual Yankee Swap. The guild gave a special gift, Time Trax model 185, to one lucky contest winner. The Time Trax model 185 measures BPH and has a built-in beat amplifier. Meetings always include a show-and-tell, the 50-50 drawing, and any material wants/needs.

In November Jay Johnson gave a presentation on his collection of “Black-History-Related Pocket Watches.”

The guild clock repair class is scheduled to start on January 23.

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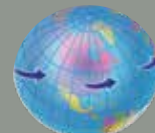
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ROGER DUBUIS
MANUFACTURE HORIZONNAIRE

OFFICINE PANERAI

Richemont owns several of the world's leading luxury companies in the field of luxury goods, with particular strengths in jewelry, luxury watches and other luxury accessories.

We are seeking talented and qualified Watchmakers to work for our brands located throughout the United States and Canada in our Boutiques and Service Centers.

Responsibilities

- *Must be qualified to perform services which include Complete Maintenance and Quick Services on calibers that include*
 - Quartz
 - Mechanical
 - Automatic
 - Chronograph
 - Complications
- *Diagnosis*
- *Case Preparation*
- *Achieve and maintain Production and Quality Objectives*

Qualifications

- *Accredited Certification*
- *Experience working with luxury brands preferred*
- *Strong attention to detail, with the ability to handle multiple tasks*
- *Ability to work in a fast-paced environment*
- *Strong diagnostic skills*
- *Good customer service and communication skills*
- *Knowledge of SAP System would be a strong advantage*

We offer competitive compensation, on-boarding program, benefits and relocation assistance. To be considered, please submit your resume and profile on www.Richemont.com or by fax to 817-283-2304.



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