JULY 2019

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AWCI

IN THIS issue

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Orloj, the astronomical clock in Prague. Read about its recent restoration on page 17.
Photo courtesy of HOerwin56/Pixabay

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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The Archie Perkins Mobile Horology Classroom

The AWCI Board of Directors has made a historic decision that will change the future of horological education in the United States. We understand it is difficult to leave the workshop and travel to receive training, so AWCI will be bringing education directly to you in the places where you live and work. The Archie Perkins Mobile Horology Classroom is part of a renewed effort to expand our educational offerings to include all segments of the horological community, including professional watchmakers, professional clockmakers, sales and support staff, technicians, collectors, and anyone with an interest in horology. The Mobile Horology Classroom will be the first of its kind anywhere in the world!

AWCI construction of the Archie Perkins Mobile Horology Classroom is finally complete! The mobile classroom will travel all over the United States offering horological education at every level.

The classroom will provide a much better learning environment than what can be offered in a hotel meeting room or conference room. The classroom will accommodate eight students and one instructor with custom-made, adjustable-height watchmaking benches. Instructional technology will be similar to what is currently available in our Harrison classroom, including a digital microscope, bench camera, document presenter, projector, and monitors. There will be a dedicated cleaning room with automated cleaning machine, ultrasonic, and steamer.

The classroom is ADA accessible with a wheelchair lift and accessible restroom to accommodate the needs of every individual.

When the Archie Perkins Mobile Horology Classroom arrives in your city, you can expect it to stick around for one to two weeks. AWCI will offer a class for professional watchmakers as well as one for clockmakers. We will team up with local jewelers and AWCI members to host collectors' events and classes and to provide technician training for sales and support staff. If you are interested in bringing the classroom to your city, please contact our education director, Jason Champion, CW21, education@awci.com.

We look forward to seeing you in our mobile classroom soon!

AWCI MOBILE HOROLOGY CLASSROOM

a message from the

president

AARON H. RECKSIEK, CW21

Aaron H. Recksiek
arecksiek@awci.com

We recently returned from our annual trip to JCK Las Vegas where the Archie Perkins Mobile Horology Classroom was beautifully displayed amongst watch brands and other watch- and clock-related companies in the Clockwork Lounge. We were received extremely well, to the point where people would come find us after hearing from someone else that they needed to check out the inside of the classroom. In four days, we were able to make enough contacts and get enough requests to fully book many of the areas we will be traveling to over the next 12 months.

There is a tremendous demand for watchmaking education right now.

There is a tremendous demand for watchmaking education right now. Much of it stems from collectors or amateurs wanting to know more about these watches they love so much. We are also seeing a demand for staff training at jewelry stores to better educate their staff on doing simple battery changes or repairs, and also educating them on how to operate a quality after-sales service department. We understand that these are relatively new areas of education for AWCI, and we don't want any of this to take away from any of our current educational offerings for professionals. In fact, we are going to be expanding our course catalog very soon with newer topics and unique opportunities. With that in mind, when we changed our mission statement several years ago to "Setting Service Standards & Educating the Horological Community," we fully intended to include anyone with an interest in learning anything about watches or clocks as a part of the "horological community." So, I want to assure you our focus has not changed. It has just expanded to include people we may have been underserving for many years.

Educating "nonprofessionals" is part of a broader mission to not only bring more income to the

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a message from the

executive director

JORDAN P. FICKLIN, CW21

Jordan P. Ficklin
jordan@awci.com

As I write this, I am returning home from the JCK Las Vegas show. It was a huge success for AWCI, for the industry, and for our membership. The JCK was the culmination of our first trip with the Archie Perkins Mobile Horology Classroom, and it performed beautifully. It is a comfortable environment for teaching and learning.

At the Bay Area Maker Faire, we helped more than 200 kids learn more about the world of clocks and watches and introduced more than 20 people to the world of tiny mechanical marvels. Hundreds of people toured the classroom and all were impressed by its size and quality.

In Salt Lake City we invited local AWCI members to come and see the mobile classroom, and we taught a short chronograph lecture to the local collector's group, SLC_Chrono. We had a small Build a Clock class and a sold-out Build a Watch event in downtown Salt Lake City.

We continue to advocate on your behalf.

At JCK Las Vegas we held a ribbon-cutting ceremony and were honored to have the support of Roland Murphy of RGM Watch Co. and Archie Perkins's children, Richard and Judy. Tom Schomaker taught eight classes for sales and support staff, and, as usual, they were all well attended. Our Build a Watch event with Roland Murphy was also a huge success. We were able to sit down with our friends at Jules Borel & Co., Bergeon, Witschi, Elma, Beco, and Renata and recommit them to their continued support of AWCI.

If we had only accomplished the above, the whole trip would certainly have been a success—but there was so much more. The mobile classroom was an excellent billboard and was a conversation starter everywhere we stopped, including gas stations, hotels, and especially at JCK Las Vegas where it was the talk of the show. The spectacle of a 38' bus on the show floor opened the door for many conversations.

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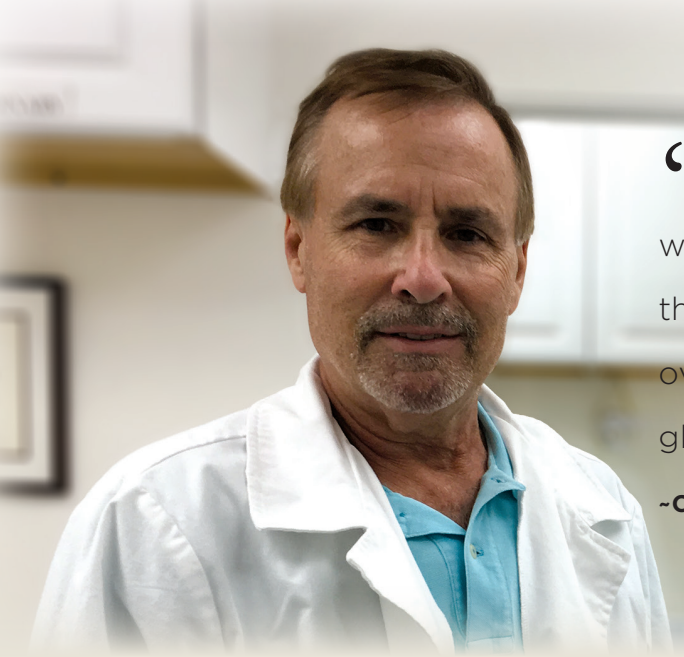

"There is no comparison to the classes I've taken with Tom Schomaker at AWCI. After many years in the industry I was surprised at what I had forgotten over time, and amazed at all that I learned. I'm really glad that I chose to take them."

~Chris Wiles, CW21

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Email or call our education director, Jason Champion, CW21, today for more information: education@awci.com | Phone: 1-866-367-2924, ext 303

AWCI educational calendar

Reserve your spot today. Contact the education director, Jason Champion, CW21, at 866-FOR-AWCI (367-2924).

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REGISTER NOW TO ENSURE YOUR SPOT!

July 8-12	WATCH 420: **Vintage Chronograph** Instructor: Bernhard Stoeber, CW21 AWCI Headquarters, Harrison, Ohio	**$1,095**	Back by popular demand, come participate in a vintage chronograph course with Mr. Stoeber. In this course, you will go through theoretically and practically different vintage chronograph calibers with emphasis on troubleshooting, repair, and adjustments to each mechanism. Lemania, Landeron, and Valjoux calibers will be covered. Sign up quickly!
July 29 - August 2	WATCH 476: **Restoration and Construction Techniques** Instructor: Henrik Korpela AWCI Headquarters, Harrison, Ohio	**$1,095**	Join Henrik Korpela in this course where you will finish watch bridges using techniques employed in vintage restoration and construction of "kit" watches used by high-end manufacturers.
August 12-16	WATCH 175: **Case and Bracelet Refinishing** Instructor: Tom Schomaker, CMW21 AWCI Headquarters, Harrison, Ohio	**$1,350**	Polishing a case today requires many skills, and today's consumer has high expectations. This class includes concepts and hands-on training in the following areas: metallurgy, lathe finishes, modern variable-speed polishers, polishing techniques ensuring case shape integrity, and many more.
August 19-23	WATCH 100: **Introduction to Watchmaking** Instructor: Tom Schomaker, CMW21 AWCI Headquarters, Harrison, Ohio	**$1,095**	A survey course for the new or prospective watchmaker covering the basic skills and techniques used by the modern watchmaker. This class is perfect for anyone thinking about entering the profession of watchmaking or for the individual who just wants to gain a better appreciation for the art of watchmaking.
September 4-6	WATCH 102: **Watchmaking Theory** Instructor: Tom Schomaker, CMW21 AWCI Headquarters, Harrison, Ohio	**$595**	This course explains the inner workings of a watch and is a must for anyone considering taking the CW21. It allows you to understand not only functional issues, but theoretical ones as well. Lubrication, isochronism, automatic systems, calendar systems, and much more will be explained. Testing will be done at the end of each section covered and answers will be reviewed.
September 16-20	WATCH 220: **Modern Mechanical Chronograph** Instructor: Tom Schomaker, CMW21 AWCI Headquarters, Harrison, Ohio	**$1,095**	Students will learn all the basics of the modern mechanical chronographs that are most prevalent in today's market as well as gain a profound understanding of how chronograph watches operate. Prerequisites: It is beneficial for the student to have a minimum of 3 years' experience in manual and/or automatic watch repair; own *The Theory of Horology* and read chapter 11.
September 30 - October 4	WATCH 200: **Modern Automatic Watches** Instructor: Tom Schomaker, CMW21 AWCI Headquarters, Harrison, Ohio	**$1,095**	This course teaches the student all the fundamentals of modern mechanical automatic watch repair that are most prevalent in today's market. The student will learn how to perform the various diagnostics in evaluating the condition of the various components, cleaning, assembling, adjustments, dialing, and casing. Prerequisites: At least 3 years in mechanical watch repair, WATCH 190: 21st-Century Watchmaking Standards, read pages 169-188 of *The Theory of Horology*.
October 14-18	WATCH 350: **Tool Making For Watchmakers & Clockmakers: The Watchmaker's Lathe II** Instructor: Tom Schomaker, CMW21 AWCI Headquarters, Harrison, Ohio	**$1,095**	A continuation of Watchmaker's Lathe I, this class teaches the student the necessary knowledge and hand skills to manufacture various parts in steel that will be functional in a mechanical watch, e.g., the winding stem. Prerequisite: Watch 250: Essential Micromechanics—The Watchmaker's Lathe I or instructor approval.
October 23-25	CLOCK 120: **Introduction to Clocks** Instructor: Ken De Lucca AWCI Headquarters, Harrison, Ohio	**$595**	Build your skills as a clockmaker with this 3-day class. This course covers the basics of the American-style time/strike movement including disassembly, reassembly, common issues, beat adjustments, synchronization of the strike train, and more.
November 4-8	WATCH 100: **Introduction to Watchmaking** Instructor: Tom Schomaker, CMW21 AWCI Headquarters, Harrison, Ohio	**$1,095**	A survey course for the new or prospective watchmaker covering the basic skills and techniques used by the modern watchmaker. This class is perfect for anyone thinking about entering the profession of watchmaking or for the individual who just wants to gain a better appreciation for the art of watchmaking.

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For additional details about specific courses in comprehensive syllabi form, including complete tool lists, visit: **www.awci.com/classes** or contact the education director, Jason Champion, CW21, at 866-FOR-AWCI (367-2924). For additional calendar events visit: **www.awci.com/calendar**.

events calendar

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October 25-27	Florida Watchmakers Association Annual Convention		Tampa, FL
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To get more information or to start the process, contact our education director, Jason Champion, today at 1-866-367-2924, ext. 303 or certification@awci.com.

"Receiving my Clockmaker's Certification was one of the proudest moments of my life."

-Michael Gainey, CC21

The Prague Astronomical Clock:
A Restoration to Mark the Czech Centenary

By Chris McKay, FBHI

The following article first appeared in the *Horological Journal* in November 2018 and is reprinted with their permission and the permission of the author, using *Horological Times'* original layout and design. The restoration of the Prague Astronomical Clock was completed about nine months ago.

Orloj

Orloj, the famous medieval astronomical clock that is part of Prague's Old Town Hall, must draw more tourists than any other clock in continental Europe. The complex dial shows a great deal of astronomical and terrestrial information, and crowds gather to watch the regular "performance" of its moving models. On the hour, a skeleton strikes a bell as three other figures representing various earthly sins shake their heads, a golden rooster flaps its wings and two doors open to reveal a passing procession of the 12 Apostles. Each turns to face the crowd briefly before moving along out of sight.

Why was such a clock created? The answer might be "because we could." The clock was made by Imperial Clockmaker Mikuláš of Kadaň circa 1410, and the astronomical work was most likely designed by mathematics professor Jan Šindel. The whole clock proclaimed the riches and technical ability of the city. During the past 600 years it has been altered, updated and repaired. Now the tower, dials and clock have just undergone an extensive restoration and conservation project, carried out to mark the country's recent centenary, celebrated on 28 October.

A Visit to Prague

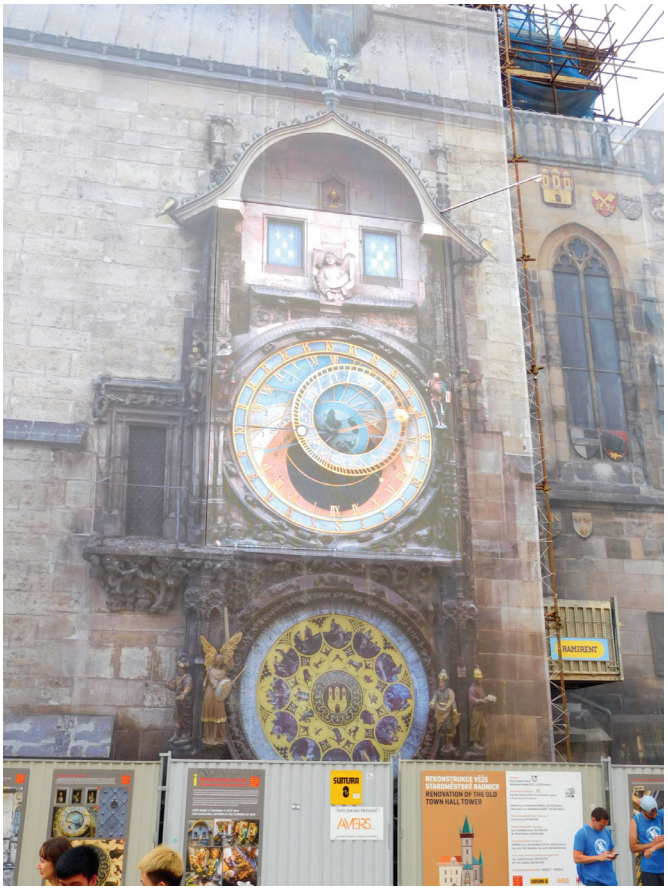
In 2017, a party of horologists who were members of the Czech Horological Society visited the UK and I was pleased to help organize two days of their tour. This year I was invited to visit Prague and see how work was progressing on *Orloj*. I had introduced my friend Marisa Addomine, a horological consultant and historian, and expert in Medieval Palaeography and Latin, to society committee member David Knespl. Marisa is very knowledgeable about Italian astronomical dials, so she too was invited. This article is intended to be a photographic record of what we saw.

Like the Elizabeth Tower, the clock tower in Prague's Old Town Square had been covered in scaffolding and safety netting. Big Ben is obscured, but *Orloj* was brought to life during its conservation by means of an LED screen that displayed both the time and the Apostles' parade. Tourists, then, still got an idea of the experience to take home with them. The remains of the screening net were printed with the stone work, making it all look very realistic. It is a pity that the Houses of Parliament have not taken Prague's initiative and provided similar LED screens of the dials of The Great Clock.

What follows is a brief description of the clock's operation and history. Classic works for more detail include Alfred Ungerer's *Les Horloges Astronomiques et Monumentales* (Strasbourg, 1931) and Zdenek Horsky, *Prazsky Orloj* (Prague, 1988), as well as more recent booklets.

The Clock Tower

The clock tower of the Old Town Hall is not tall, perhaps 35 feet from the ground to the golden cockerel, and it is easy to see the "performance" when it begins. There is a tall tower above the clock (which must be 150 feet), with four new dials that are over three meters in diameter. These dials display time in the Central European Baroque tradition, as employed not only in Czech lands but also in Germany (especially Bavaria) as well as Austria. The hour hand is the long one and the minute hand the shorter. Central to the clock is a large astronomical dial; below this is an equally large calendar dial and two small, plain dials, one on each side of the tower.



The Old Town Square (Staromêstské námêstí) in May 2018. The reproduction of the clock with its dials on the screening goes a long way to help tourists appreciate the clock. The border of the LED screen can just be made out round the astronomical dial.

An old postcard, probably from the 1930s, showing the astronomical dial. The time is a little after midday and the date is early July. The moon cannot be discerned; otherwise, the year of the photo could be deduced.

Astronomical Dials

Horologists find the astronomical dial the most fascinating. There is a 24-hour circle and a long pointer terminating in a golden human hand, indicating the time. A star on another hand shows sidereal time. A ring of the ecliptic is marked with the customary signs of the zodiac and the current position is shown by a golden sun. The moon, too, moves through the ecliptic, the phases altering as it progresses.

There is plenty of extra information showing sunrise, sunset and twilight hours. Particularly unusual is the indication of Bohemian hours. This system is the same as Italian hours. It starts at sunset, which is designated as 24 on the dial (so 1 would be one hour after sunset).

The going, striking and Apostles' carousel-drive, and all in one frame. Shown here is the basic frame; parts were later added.

Since sunset varies annually in Prague by about six hours, the chapter ring that indicates Bohemian time is moved in order to accommodate this variation. Tourists may find the figures of that ring puzzling; they are in an old German blackletter style known as *Schwabacher*. There is also a large calendar dial below the astronomical dial.

Petr Skála working on the astronomical clock movement.

The wrought-iron frame holds all three trains. Marisa and David are hiding in the background.

The winding reduction wheel being reinstated. Here it is being mocked up with wooden arbors.

The original ecliptic ring with its zodiac figures was in poor condition. Petr has fabricated a new ring in copper. The steel screws will all be replaced with copper rivets.

Clock Operation

The clock's working is simple when broken down into parts. There is an accurate single-train movement with a gravity escapement. The clock was designed by Božek and made by a clockmaker named Holub in the 1860s. Every minute the clock releases the train that drives the dials. The Hainz company was involved with the clock in that period and is still responsible for its overall maintenance. Originally, the going movement had an escapement but now operates as a remontoire advancing the dial work every minute. There is a striking train and a train to operate the Apostles' carousel. All three trains are contained in an ancient wrought-iron frame.

Restoration

Like any ancient mechanism, the clock's workings have been altered greatly. In the last days of World War II, a shell hit the tower and caused a great deal of damage. The decision to restore the clock and tower for the Czech Republic's centenary involved

A bold finial decorates each corner post.

Cleaning has revealed how iron parts have been joined using welded scarf joints.

All the wheels of the astronomical dials are wrought iron.

removing the clock and dials completely. Needless to say, this involved many craftspeople from different disciplines.

Petr Skála has been involved in turret clock work for many years, maintaining, repairing and restoring clocks throughout Czechia. He is a quiet man, but like all great restorers, willing to share his knowledge and to explain what he has done. Talking with him (with David Knespl acting as translator), I learned what the plan was.

The frames were stripped of paint and treated with citric acid to remove all traces of rust. They were then treated further to prevent rust from reforming. This process revealed the whole wrought-iron structure: where joints were made and where pieces were added or removed. Iron wheels, too, were likewise treated.

The clock had been automatically wound with a standard system using weights on Huygens endless chains and motor rewind. Like most such installations, the automatic winders were large, the weight drop long, and visually it was most unattractive with pulleys, weights and chains everywhere. This all changed. Petr replaced the wooden barrels that were removed long ago and inside each barrel he installed an automatic winder of a completely new design. The stone driving weight hangs from a rope—yes, a real rope—and aesthetically the new winder looks as though it is back to the original hand winding.

Petr also gave the dials the attention that they needed. A new ecliptic ring of copper was made to replace a corroded one that dates from the mid-19th century. He also made the new dials for the top of the tower; these show the time in the old manner.

Detail of the Bohemian hour ring showing the *Schwabacher* characters.

The hour of sunset is adjusted by this track in the Bohemian hour ring.

Where a clock hand is really a hand. This indicates the time on the 24-hour dial. The hand is copper and is awaiting gilding with gold leaf.

Made of gilded bronze, the cockerel is shown here flapping its wings.

One fascinating item is the moon, which moves around the ecliptic and displays the phase. The mechanism controlling the phase is interesting. Inside the sphere of the moon is a weight that drives a wheel which then turns the moon ball to display moon phases. These follow the conventional 29 1/2 days period. After some years, the phase needed correction. A head for heights is needed; just step out onto the balcony below the dial and turn the moon until it shows the correct indication.

New dials on the Old Town Hall. The I to IIII are old traditional markers for the quarters; the short hand is the minute hand.

The moon changes phase as the dial rotates. A slider keeps the moon positioned in the ecliptic circle.

National Pride

When I asked Petr if I could write an article about the restoration and publish the pictures, he was enthusiastic. "It's our clock," he said. "It belongs to the Czech nation. Please do something!" I thought his attitude was most commendable, and a marked difference from news about Big Ben's restoration where secrecy seems to pervade everything.

Acknowledgements

Marisa Addomine for her comments on the text. David Knespl for making the visit to Prague possible and for correcting my errors in the article.

Petr holding the moon.

Chris McKay is an acknowledged expert on the English turret clock and has written a history of Big Ben, a practical book on turret clock repair and restoration, and *The Turret Clock Keeper's Handbook*, which is specifically for those who look after turret clocks. He has run courses at the BHI on turret clock repair.

Chapter One Scholarship Grant for 2020

The directors of the Philadelphia Chapter One of the National Association of Watch and Clock Collectors, Inc., (NAWCC) cordially invite all interested and qualified individuals to apply for a scholarship grant to attend a recognized school of horology in the US or an NAWCC watch and clock traveling workshop. Membership in the NAWCC by applicants is preferred but not required. One or more grant awards of up to $500 are planned and may be used to cover all or part of the tuition and registration costs for a single course of study at a recognized school of horology or an NAWCC watch and clock traveling workshop program. NAWCC traveling workshop course listings are available at www.nawcc.org., as are listings of other recognized schools of horology in the US. Previous award recipients may be eligible for a second scholarship at the directors' discretion.

Scholarship awards are given to promote the study of horology. After completing their course of study, scholarship awardees will be encouraged, but not required, to help at their NAWCC home chapter meetings by promoting the educational programs of the chapter through lectures and workshops on horological topics, and by other means. If they do not belong to a local chapter, they may also help with educational activities in other horological organizations.

A copy of the application form for a scholarship grant may be obtained by telephoning Charles Buttz, Scholarship Committee Chair, at 570-595-3306 or by sending an email to cwbuttz@gmail.com. The application form may also be downloaded from the Chapter One or NAWCC website. To find the website, go to www.nawcc.org, then click on: Find a Chapter Near You, Pennsylvania, and Chapter 1, Philadelphia.

Guidelines for award of the scholarship are summarized on the application form. Applications for a scholarship grant for study in 2020 must be received by October 15, 2019, and awards will be made by December 1, 2019. If you are interested in being considered for a scholarship grant, please complete the application form and mail or email it to:

Charles Buttz, Chair
NAWCC Chapter No. 1 Scholarship Committee
P.O. Box 222
Buck Hill Falls, PA 18323
email: cwbuttz@gmail.com

CAD, CAM, and 3-D Printing for the 21st-Century Watchmaker

Part 1: The Tools

By Jason Ziegenbein, CW21

We've all heard the saying, "The right tool for the right job." Having more and better tools at your disposal can only strengthen your ability to perform your craft. This six-part series brings computer-aided design (CAD), computer-aided manufacturing (CAM), and 3-D printing into the workshop as powerful, flexible, and accessible tools. Up first is an overview of these tools.

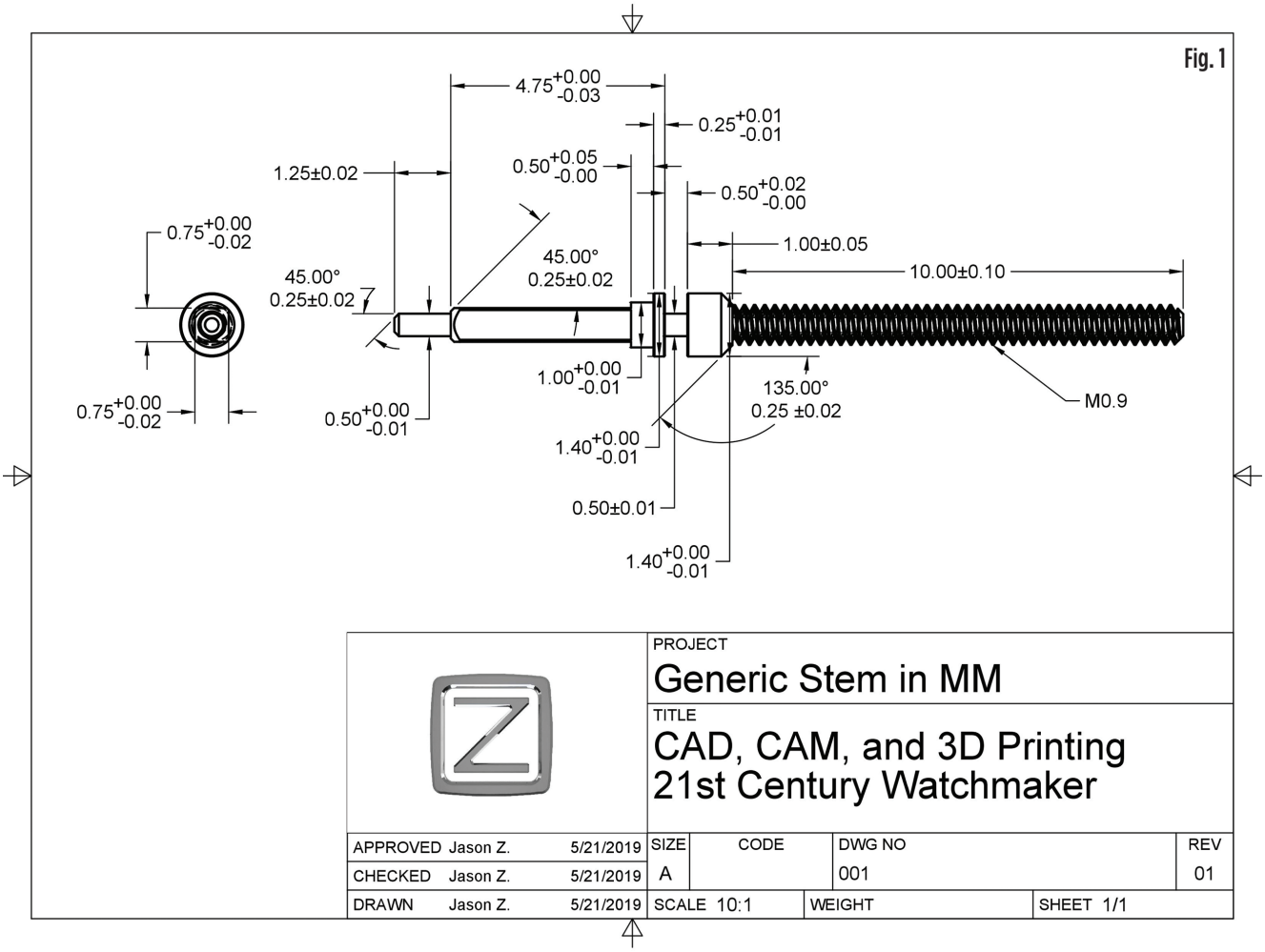
Computer-aided design is a general term for using a computer with software to develop a design. Everything is possible in CAD, from drafting in 2-D to creating 3-D photorealistic models of complex systems. The use of CAD can be seen in the blueprints and exploded views of modern tech guides and in the exacting development of modern calibers.

An early core proficiency of watchmaking school is the creation of a set of blueprints for components to be made, Figure 1.

The watchmaker must take care to draft the component to scale, notate dimensions and tolerances, and indicate special features. Of course, portions of the drawing could be erased and drawn again if there was a design change. CAD makes this process faster, easier, and offers a wide variety of tools unavailable to paper and pencil. There are fundamental tools for creating basic 2-D features, such as lines, boxes, and circles, and 3-D shapes, such as cylinders, cubes, and cones. There are also more complex tools for creating thread forms, tooth profiles, arrays, and patterns. The time required to create and revise a technical drawing can be drastically reduced by leveraging these kinds of tools in CAD.

Another powerful tool is an iterative design history, often called a timeline. A record is made each time a feature is added or modified. Therefore, it is often possible to go back and edit features created

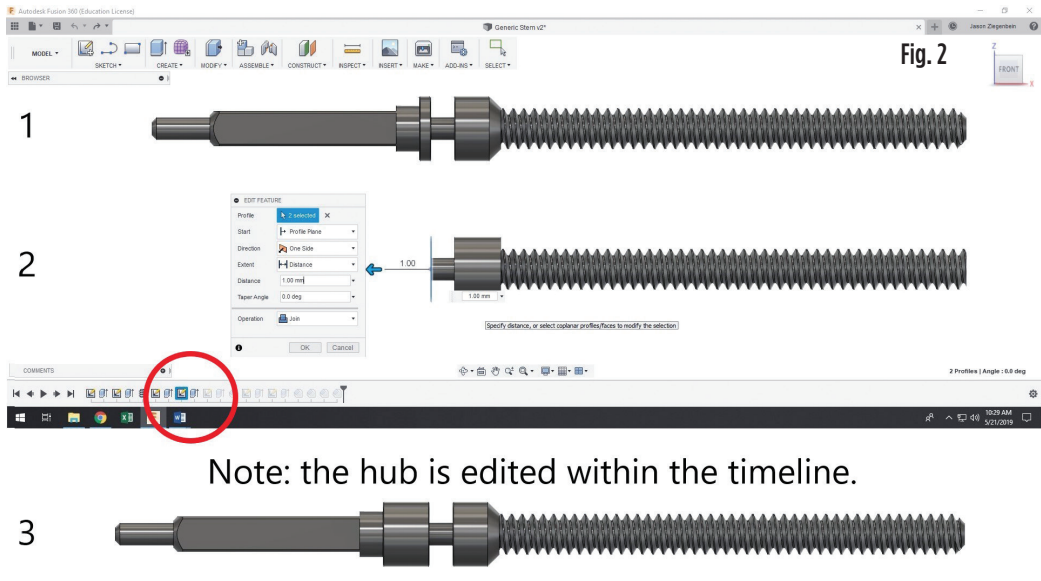
Fig. 1

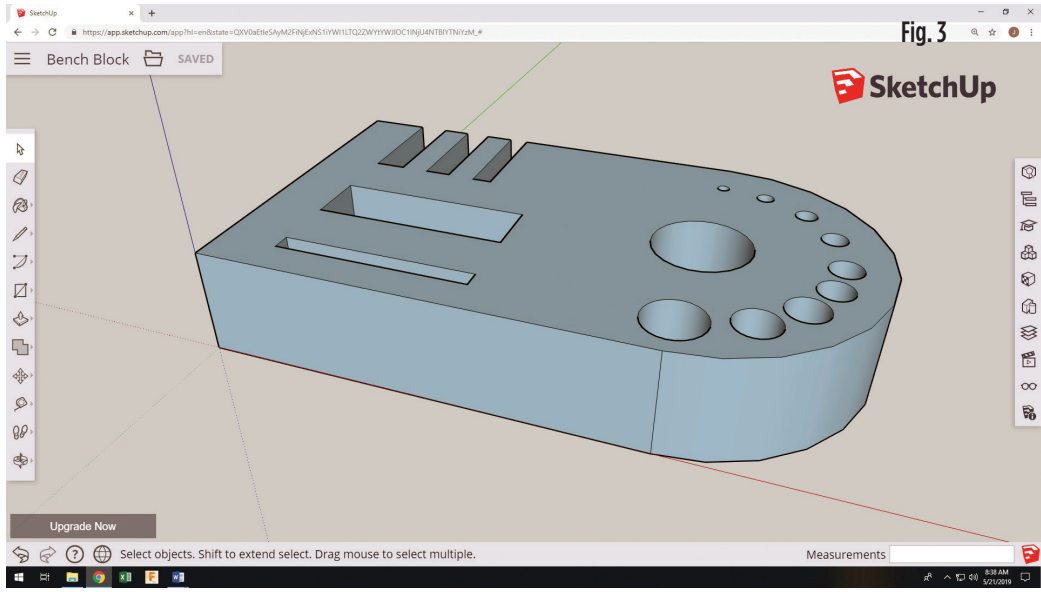


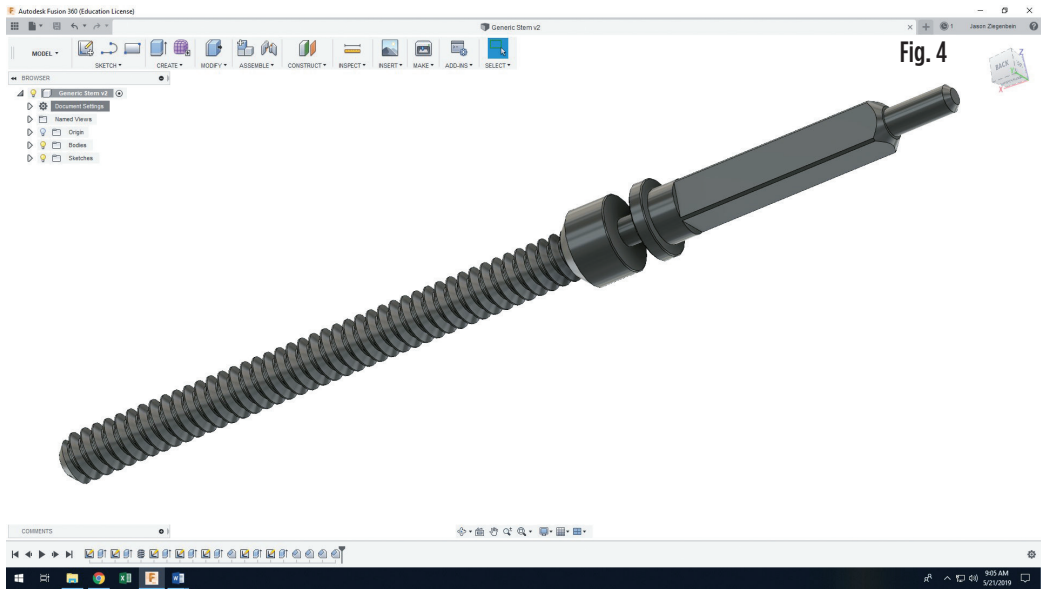
earlier and have the features added later build off of that change. For example, instead of having to erase half a stem to increase a hub length, the original hub feature is modified in CAD where it was created in the timeline and the rest of the stem adjusts accordingly, Figure 2.

CAD also lends itself to effective and efficient communication. Industry-standard title blocks are available as templates, thus saving time and effort on proper documentation vs. drafting them out. Standardized file formats and the significant efforts of software creators to improve interoperability have largely made the sharing of models, drawings, and documents easy, regardless of program choice. There is certainly a time and a place for a "napkin sketch," but communicating with other professionals who are not familiar with your specific design intentions or requirements necessitates exacting specifications.

Gone are the days when the cost or availability of computers and software was a significant barrier. There are completely free programs such as FreeCAD and Google SketchUp, Figure 3, that operate in the cloud and require only a web browser and Internet access; professional-level applications such as Autodesk's Fusion 360, Figure 4, and everything in between. Simple, low-powered laptops without dedicated graphics have plenty of power for many programs, eliminating the need to buy expensive, dedicated hardware. Consequently, there may be little to no cost for anyone interested in learning CAD.







If the model designed in CAD is to be made on equipment under computer numerical control (CNC), the next step in the process would be to use computer-aided manufacturing (CAM) software. CAM involves the use of computer software to control the operations of machine tools. In our case, CAM software is used to prepare code for a piece of manufacturing equipment to physically make the widget previously designed in CAD. CAM software comes in many flavors, adapted and optimized for the wide variety of CNC equipment.


Fig. 5

A quick search for CNC on YouTube brings up many examples of what you might envision CNC to be: autonomously moving machines shearing and flinging chips of metal, wood, or plastic away from a block of material. These are examples of subtractive manufacturing, Figure 5.

It's essentially the same concept as cutting out a balance staff with a watchmaker's lathe or hand-filing the square on a stem. In contrast to this is additive manufacturing, Figure 6, which is a process by which material is added piece by piece to make the product and is the principle upon which 3-D printers work. In both cases, the motion of the equipment is guided by a set of instructions. This is where the CAM software comes into play.

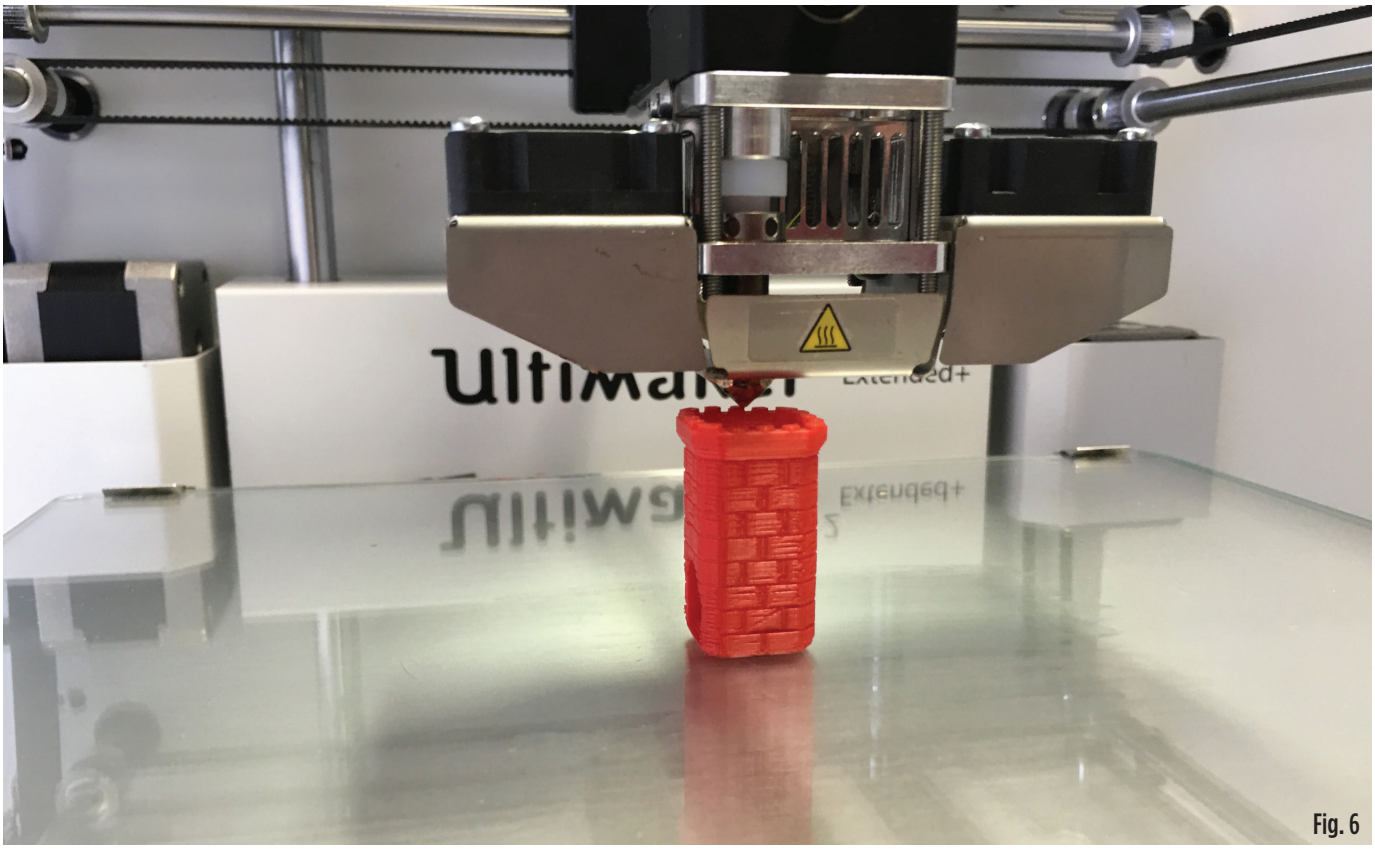


Fig. 6

Every machine, material, and tool has properties that must be taken into consideration when developing the instructions for creating the desired widget. In the case of something like a three-axis CNC mill working on a block of aluminum, this can get complicated quickly. The material has an optimal cutting speed at which the tooling should move to increase tool life and the quality of cut. Compound that with variables such as the depth and length of cut; different cutting geometry options; the number of cutting faces per tool; the rigidity of the tool, machine, and work piece; the torque, horsepower, and spindle speed—and it can get quite complicated. Those are just a few of the complications. CAM software often has the ability to store tooling parameters and equipment information to help solve this in addition to tools that help calculate and define tool paths, depending on different machining strategies. Should you desire to travel down that wonderful rabbit hole of machinist and programmer, you'll find these tools are all but essential. Fortunately for those of us wanting to just use a typical 3-D printer, the CAM is much simpler.

Back in the earlier days of CAD, a pen plotter was often used to create higher-quality line graphics (such as a blueprint) compared to a dot-matrix printer. Instead of creating graphics from a grid of dots, a pen plotter used a pen to draw continuous lines on a piece of paper by moving the pen and paper against each other along two axes, X and Y. This is somewhat similar to the way a 3-D printer using a material extrusion technique called fused deposition modeling would lay down a single layer of plastic. To build a three-dimensional model, a third Z axis is added, Figure 7. The extruder moves up a bit and lays down another layer of plastic upon the first. The finished model is then composed of layers upon layers of extruded plastic. Instead of the CAM being as outlined for the CNC mill earlier, the CAM for this style of 3-D printing is simpler and often called a "slicer."

Slicing programs generate code just like the other CAM software. The largest difference lies in the approaches of additive and subtractive manufacturing. Instead of removing material to reveal the model, slicers add material where the model should be. To do this, the solid exterior of the model is sliced into layers to be printed one at a time on top of each other. The slicing software typically has variables for different materials, print speed, resolution, how much

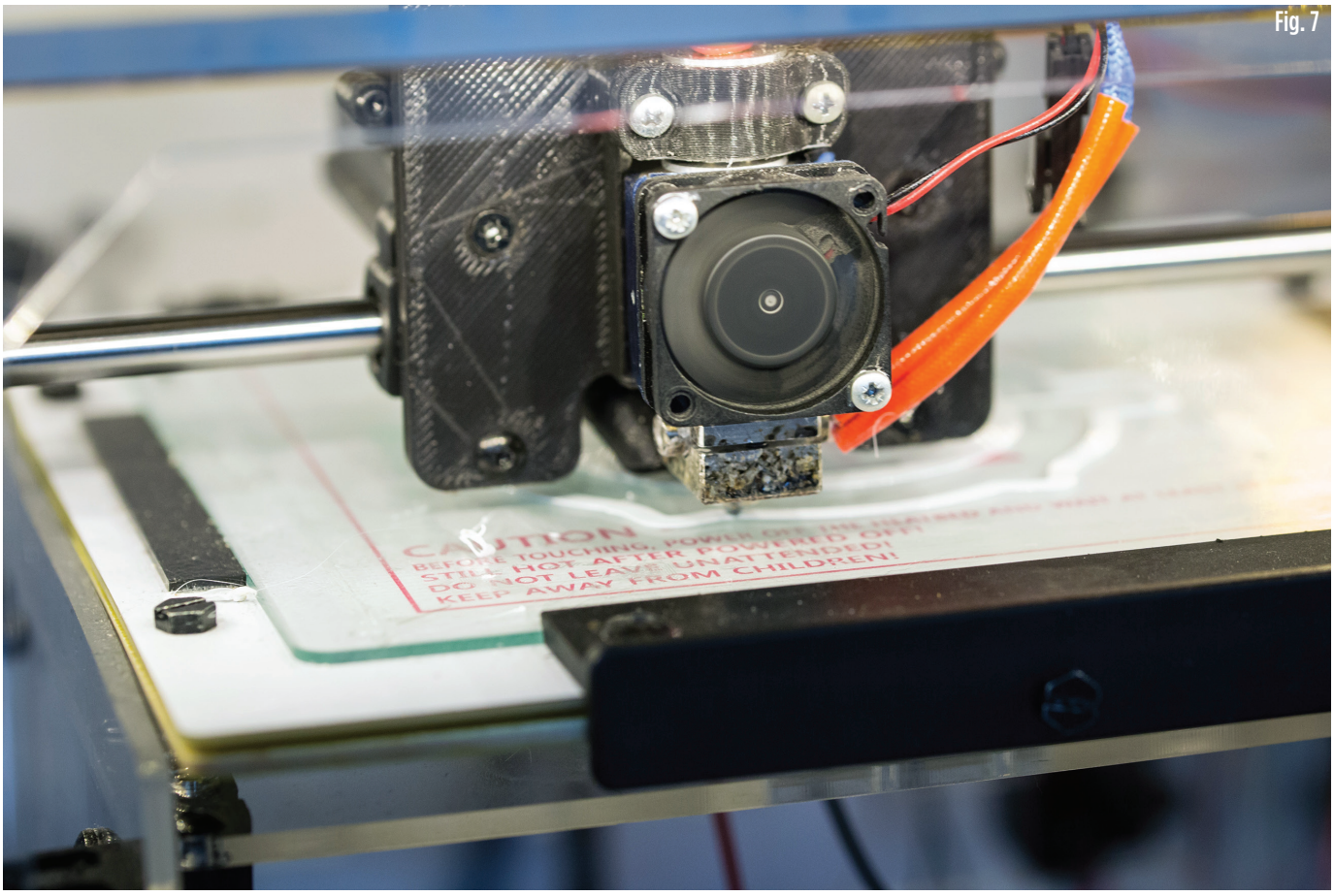


Fig. 7

supporting or filling material needs to be added, and layer thickness, to name a few. The code is generated for a particular 3-D printer and the print is executed. Altogether, the process is relatively simple and straightforward.

The ease of and accessibility to 3-D printing has created a worldwide, active community base. The sharing of 3-D models generated in CAD has been around for ages. With websites such as www.grabcad.com and www.thingiverse.com, it's possible to go from browsing other creators' models to physically printing them in minutes. A quick search reveals models for watchmaking tools and holders already available, not to mention sharing within your own professional network. 3-D printers of reasonable quality can now be had for under $200 for the smaller models. There are also services online such as www.shapeways.com that will deliver your model to you in a wide variety of materials and colors. Maker spaces that offer access to 3-D printers for the cost of materials are gaining popularity and are available in most larger cities. Many local libraries also have 3-D printers for your use at material cost. As widely available and easy to access as this technology is, it's possible to create your own widget and have it printed for just a few dollars. This brings the power of one-off, unique solutions to your fingertips.

To bring it back to the bench, learning and becoming familiar with CAD, CAM, and 3-D printing provides options—to create a custom fixture for holding an irregular case, to create a die for pressing in a unique crystal shape, or the ability to quickly create and send an exacting technical document to resolve issues or have parts made, and so much more. Your very own, unique designs can be had with a little time, almost any computer, community resources, and the cost of a fancy coffee. The next installment in this series will highlight a variety of CAD and CAM software from entry-level to professional on our way through demonstrating real world, at-the-bench examples of this technology. After all, it's always good to have more options.

Jason Ziegenbein is an independent watchmaker in Tulsa, Oklahoma. He is a graduate of the 2003 WOSTEP class at Oklahoma State University.

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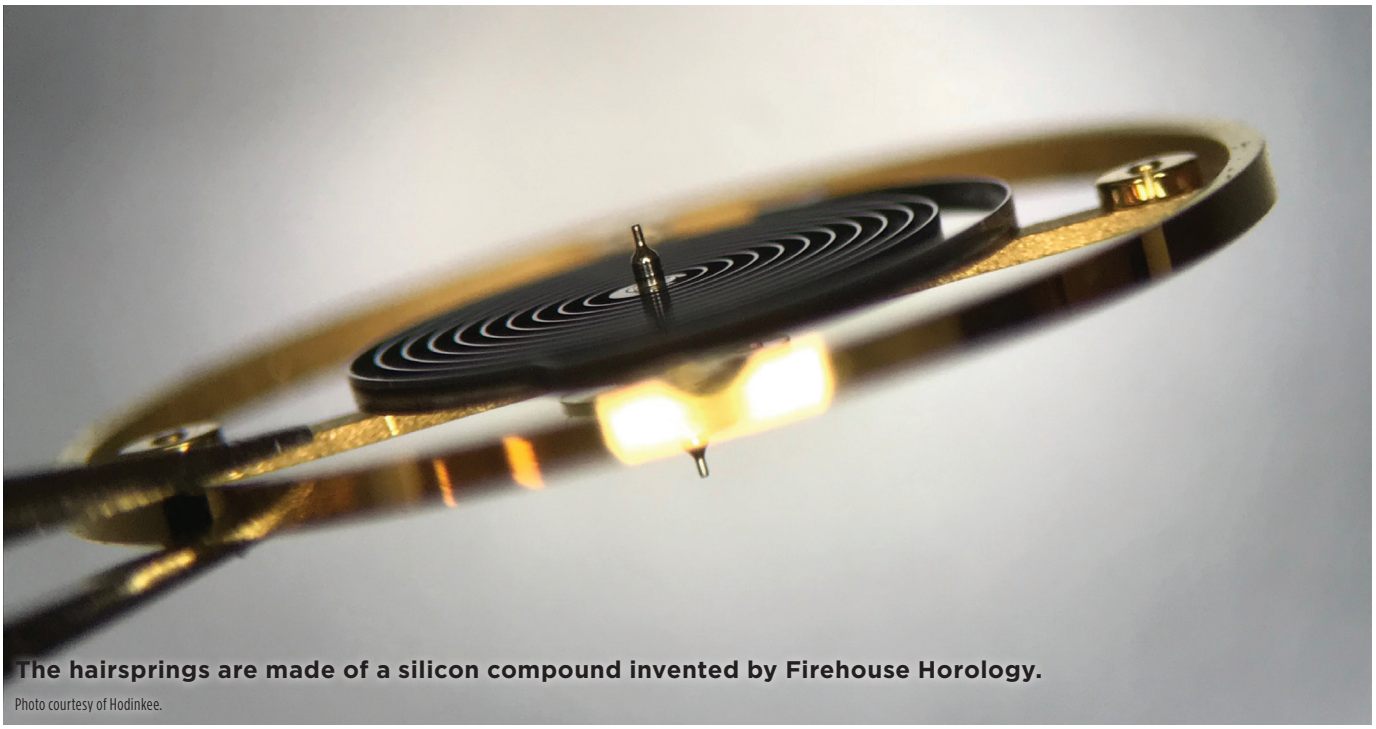
Firehouse Horology Manufactures Silicon Hairsprings in the US

By Kathy Ortt

Firehouse Horology is a new company that for the last few years has been perfecting and producing silicon components for watchmaking, including hairsprings and escapements. The silicon components are manufactured at Columbia University's Columbia Nano Initiative Clean Room, a fully equipped microfabrication and nanofabrication lab with a comprehensive set of tools. The lab is shared by academic and industrial users. With the help of F.P. Journe, Firehouse Horology's silicon hairspring has been tested and validated in an F.P. Journe Chronometre Bleu. According to cofounder and co-CEO, Kiran Shekar, creating silicon hairsprings is a challenging process not easily mastered by a small-scale business. Shekar also remarked that in nanofabrication, measurements are much smaller than watchmaking's millimeters, and bigger is actually more difficult because it means longer etches and a tougher balancing act of the multiple variables. "There are a large number of variables that contribute to a successful etch, so it's necessary to find the right balance between all of them," says Shekar. The etching process is called Bosch etching, but it is also known as deep reactive ion etching (DRIE).

Firehouse Horology was created by cofounders and co-CEOs Nicholas Manousos and Kiran Shekar. Manousos studied at the Nicolas G. Hayek Watchmaking School in Miami, Florida, and is technical editor at HODINKEE and president of the Horological Society of New York (HSNY). Shekar holds a bachelor of science degree in applied physics from Caltech and a master of science degree from Princeton. He's an avid watch collector and is a trustee of HSNY.



The hairsprings are made of a silicon compound invented by Firehouse Horology.

Photo courtesy of Hodinkee.

Source
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Kathy Ortt is an editor of the *Horological Times*.

Timex Produces Watches in the US Again

By Kathy Ortt

Timex first began producing watches in Waterbury, Connecticut, in 1854. However, as many US companies did, Timex eventually moved their manufacturing facilities out of the country. In a tribute to its American beginnings, Timex is bringing watch production back to the US with a new venture called American Documents.

The assembly of these new watches is done in converted office space in Middlebury, Connecticut. Swiss quartz movements are used in the watch, but the rest of the watch is comprised of components made in America. The leather straps are made in Minnesota by S. B. Foot Tanning, and the crystal is made by Gorilla Glass in Massachusetts. Other parts are sourced from other companies in the US. It took nearly three years for Timex to find and qualify the US companies that contribute to the watch. The American Documents watch features alternating polished surfaces on the case and a simple dial with the words "Made in America Swiss Mov't" stamped on it. The watches use an "Aged Waterbury Brass" caseback coin and crown insert. At the launch there were 1,500 watches available with four basic models in all steel with dials in black, white, dark gray, and midnight blue. The watches will be available on the Timex website for $495. The Connecticut assembly line is expected to produce 500 watches a month.

As a bonus, each American Documents watch purchased comes with a code that allows the new watch owner to download a catalog of photos from documentary photographer Bryan Schutmaat. Timex hired Schutmaat to commemorate this new series with photographs that depict the landscape and inhabitants of this country. Schutmaat left Timex headquarters in Middlebury, traveled to Texas, explored the Midwest, and then journeyed through the rest of the country. His idea was to photograph people and places on roads less traveled that represent the spirit of America.

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A bonus to purchasers of the American Documents series watch is a downloadable catalog of documentary photos portraying the "spirit of America." This photo was taken in Marfa, Texas.

Photo by Bryan Schutmaat

One of the dial options of the Timex American Documents series.

Photo courtesy of Timex

Omega Marks Apollo 11 Anniversary with a New Speedmaster

The new caliber 3861 in the limited edition Speedmaster.

Photo courtesy of Omega.

By Kathy Ortt

Omega has unveiled an Apollo 11 50th Anniversary limited edition Speedmaster to commemorate the landing of the first two people, astronauts Neil Armstrong and Buzz Aldrin, on the moon on July 20, 1969. Included in this watch is the new caliber 3861, which is the successor to the caliber 1861. The caliber 3861 took four years of research and development and has a co-axial escapement, a hacking seconds function, and an improved accuracy of +/-5 seconds per day. On the watch's face, the nine o'clock sub-dial features an etching of Buzz Aldrin stepping down from the ladder to the lunar surface. Of the indices, only the 11 o'clock shows a number to bring to mind the Apollo 11 mission. The back of the watch has an engraving of an astronaut's footprint on the surface of the moon, along with the inscription "That's one small step for a man, one giant leap for mankind."

Each watch in the series comes in a presentation box that includes a Velcro strap with black coated cork, a strap-changing tool, two mission patches, two engraved plates with landing site coordinates and landing site and time, and a lunar module display stand. These limited-edition watches will be available in September 2019. Omega stores are currently taking pre-orders with payment in full. There will be 6,969 watches manufactured at a price of $9,650.

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Kathy Ortt is an editor of the *Horological Times*.

Buzz Aldrin wearing an Omega Speedmaster during the Apollo 11 mission.

Photo courtesy of NASA / Neil A. Armstrong.

The etching on the sub-dial showing Buzz Aldrin stepping on to the lunar surface.

Photo courtesy of Omega.

In Summary

The GemOro UltraSpa

By Donna Hardy

The GemOro Products division of Sy Kessler Sales, Inc., has introduced the UltraSpa, which offers both powerful ultrasonic cleaning and high-pressure steam cleaning in a single appliance. Using a two-stage cleaning process, it scrubs dirt and grime with intense ultrasonic sound waves, and then with the steamer, it blasts away hidden dirt and remaining residue from hard-to-reach areas. The UltraSpa is available for $169.95 from GemOro's nationwide network of jeweler's supply houses or jewelry equipment distributors. For distributor inquiries, contact Angela Calzada at acalzada@sykessler.com or 800-527-0719, ext. 137.

The GemOro UltraSpa.

Photo courtesy of Sy Kessler Sales, Inc.

Source

Press release from Sy Kessler Sales, Inc.

Donna Hardy is the managing editor of the *Horological Times*.

Oris Helps RedBar Give Back

By Kathy Ortt

Oris donated $50,000 to the RedBar Fund. Some of this money came from the Limited Edition Oris RedBar watch that was launched at the 2018 CoutureTime in Las Vegas. The RedBar Fund allows members and watch lovers to make tax-deductible donations. RedBar plans to give annual grants from their fund starting in the second quarter of 2019, and they encourage all chapter members to give back to their communities. RedBar has been supporting local charities in New York City with time and sponsorship, including Bailey House, whose mission is to help people with or at risk of HIV/AIDS and other chronic illnesses through housing, health services, and community support. RedBar claims to be the largest watch-collecting group, with 55 chapters worldwide.

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Kathy Ortt is an editor of the *Horological Times*.

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Tom's Tips

By Tom Schomaker, CMW21

Using Torque Screwdrivers to Calibrate Screw Tightness

Bergeon's torque screwdriver series 7965 is a great set of screwdrivers for calibrating screw tightness, Figure 1. We have the Bergeon 7965 set at AWCI. If you are here for a class, it's available for you to check your screw-tightening skills. You can also purchase a set from Bergeon and ensure your screws are set to proper tightness.

In many tech guides you can find a corresponding torque value for specific screws. Figure 2 lists the specified torque values and their tolerances for the collars that come with Bergeon's series 7965 premium set. Each of the torque collars in the set have O-rings that are color coded for identification purposes, Figure 3, and are stamped with their nominal value. The torque collars have values set to meet most manufacturer's standards. These torque values are listed in mNm, which stands for millinewton meters. Some tech guides list the values in Ncm (Newton centimeters). To convert from mNm to Ncm, simply move the decimal point one position, i.e., 1.5Ncm = 15mNm.

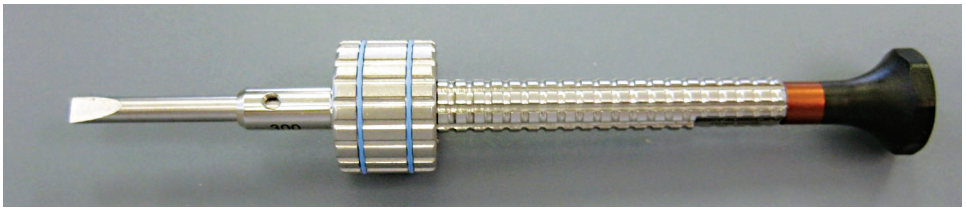
The diameter of the screwdriver body on the 7965 set is the same from the .5mm tip to the 3.00mm tip. This

Fig. 1. Bergeon series #7965 is a set of premium torque screwdrivers with a torque collar assortment.

Fig. 2. A torque chart from a set of Bergeon screwdrivers.

mNm	No.	Total min mNm	Tol. max mNm
10	7965-C10	9.0	11.0
15	7965-C15	13.7	16.3
20	7965-C20	18.4	21.6
25	7965-C25	23.3	26.7
30	7965-C30	28.2	31.8
35	7965-C35	33.3	36.7
40	7965-C40	38.0	42.0
45	7965-C45	42.8	47.2
50	7965-C50	48.0	52.0
55	7965-C55	52.8	57.2
60	7965-C60	57.6	62.4

Fig. 3. A Bergeon screwdriver with a torque collar attached. Each torque collar is stamped with the value of the torque collar setting and has color coded gaskets for quick identification.

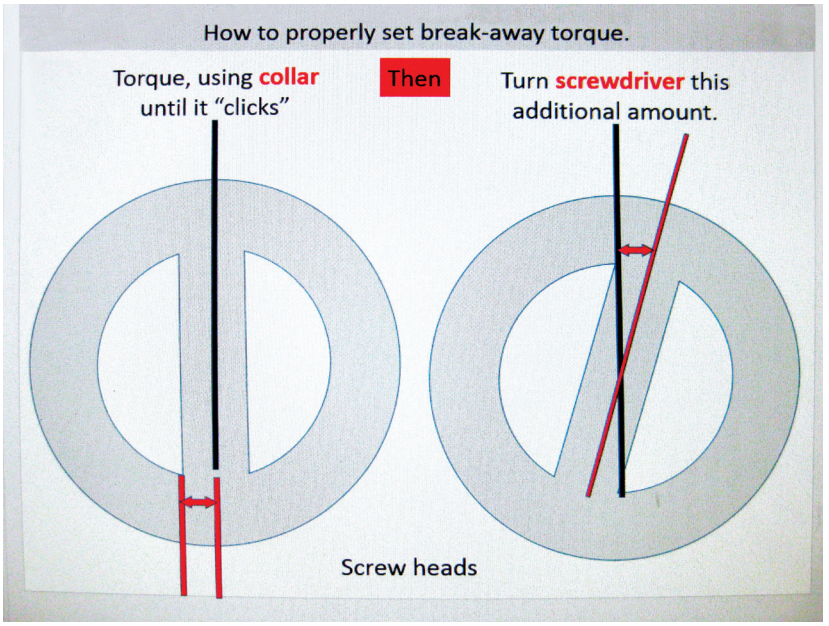


allows for the torque collars to be interchangeable with any screwdriver. The torque collars can be positioned at any point on the screwdriver, allowing for different hand sizes or for installing two collars. One collar could be for screw-tightening torque value, and one collar for screw-loosening torque value.

Published torque values are usually minimum loosening torques. To ensure that screws are tight, turn the screws gently with a traditional screwdriver until the bottom of the screw makes contact with the bridge and comes to a stop. Then, turn the screw an additional width of the screw slot, Figure 4. You can then use the proper torque collar, chosen per manufacture settings, to try to loosen the screw. If the collar clicks without loosening the screw, it is tight enough. If it unscrews, it is not tight enough.

Tom Schomaker is the watchmaking instructor at AWCI.

Fig. 4. This illustration shows how to properly tighten screws with a torque screwdriver.



Video highlighting screwdrivers: www.awci.com/torquescrewdriver

On the Road: Visiting America's Horological Museums

By Kathy Ortt

This month we are covering museums in the southern US. Two are in Texas and one is in Alabama. Two of the museums are comprised of personal collections. One museum in Texas began with a personal collection but grew as donated horological items were included.

Horological Museums in the South

The Museum of Measurement and Time features a large collection of American horology and clocks; tools used to survey and divide the land; and measuring devices such as scales, barometers, and various meters. The exhibits of the museum are representative of the period 1700-1900. These items began as the personal collection of Johnny and Edith Ingram. The museum has been in operation since 2010 and features approximately 500 American clocks, surveying equipment, calculating devices, a mechanical music section, plus other exhibits, and a research library.

The Ingrams had adopted the Ingraham Clock Company as the main thrust of their collection. It did not take long to recognize the need to expand that collection to include a greater diversity. The collection of grandfather clocks includes several uncommon and unique horological wonders.

The Museum of Measurement and Time is located at 301 North Polk Street, Jefferson, Texas. For more information about this museum and detailed directions, hours, tours, and admission prices visit www.museumofmeasurementandtime.org/clocks.html.

Q & A with Johnny Ingram, curator of the Museum of Measurement and Time

What types of clocks are in your collection?

The majority of our clock collection is made up of clocks produced by American clock companies. Several exhibits represent models or styles produced by different clock manufacturing companies. The museum also has a display of tools used for watch and clock repair.

What is a unique or unusual clock in your collection?

The clock that receives the most attention from our visitors is a 10 1/2' tall grandfather clock. This late-1700s clock most likely came to Jefferson in the mid-1800s through a navigation system which, at that time, made the city a major water transportation terminal.

Do you provide education about horology?

The museum provides education about the American clockmaking industry. We group clocks produced by different manufacturing companies and with narrative explanation illustrate how competition kept quality high and provided attractive clocks.

John and Margaret Hendricks are owners of the **Old Timers and Chimers** clock shop and museum. The museum is housed in a Carpenter Gothic-style building dating from 1865. It is a certified historic American building and is listed with The National Park Service on the Library of Congress website as The Gingerbread House of Opelika, Alabama.

The museum contains the Hendricks's personal collection of around 250 clocks that developed gradually as they decided to share some of their best clocks with the public and create an interest in clockmaking and clock collecting among the younger generation.

Appointments are recommended. Guided tours of the museum and building are offered. Part of that tour is the history of the building, which includes Southern history around the Civil War period.

Old Timers and Chimers is located at 405 South 9th Street, Opelika, Alabama. For more about this museum and detailed directions, hours, tours, and admission prices call 334-745-0129 or visit http://www.oldtimersandchimers.com/index.html.

The Southwest Museum of Clocks and Watches is a well known tourist attraction for Lockhart, Texas, drawing visitors from all over the world. The museum goals are to showcase its extensive collection, do hands-on restoration, and be a Texas educational resource. For more about this museum see the article on page 12 of the September 2018 *Horological Times*.

The Southwest Museum of Clocks and Watches is located at 109 E. San Antonio Street, Lockhart, Texas. For more about this museum and detailed directions, hours, tours, and admission prices visit www.swmuseumofclocks.org/ or call Gene Galbraith at 512-658-3853.

In future installments, we will cover museums on the West Coast. If any of you have visited horological museums in the US, we'd like to hear from you. Please email editor@awci.com. Happy travels on the horological highway to America's timeless treasures.

Kathy Ortt is an editor of the *Horological Times*.

The Museum of Measurement and Time displays a comparison of American steeple or Gothic clocks.

Photo courtesy of The Museum of Measurement and Time.

From the Workshop

By Jack Kurdzionak, CW21, FAWCI

Old Dogs and New Tricks

A few months ago, I saw an announcement from Henrik Korpela that he was offering a one-week class at his school in Le Locle, Switzerland, on the repair of vintage chronographs based on the caliber Valjoux 72/73. The class was tentatively scheduled for mid-June 2019. After reading the announcement, I realized that I was already scheduled to be in Switzerland for the EPHJ in Geneva at approximately the same time. However, I saw that the dates were conflicting, so attending both would not be possible. But what if the date of Henrik's class was not yet firm? I immediately sent Henrik an email asking if the date was flexible. He replied that it was since no one had signed up yet. With that accommodation, how could I not attend his class? Within a few days, my deposit for the class was wired and all travel and lodging arrangements were finalized. I will be in Switzerland for both events and expect to report to you upon my return.

Although I have been repairing watches for longer than some of our members have been alive, that does not mean that I have nothing more to learn. This old dog still attends classes, invests time and treasure in himself, and hopes to continue his education until it is no longer possible. If this old dog can still learn something, just imagine what our younger members can learn if they are willing to take advantage of every educational opportunity that comes their way. Education should never be considered an expense that can be delayed or eliminated. It is truly an investment that must be made to further oneself in any profession, especially when someone of Henrik Korpela's caliber is offering the class. In addition to teaching classes in Switzerland, Henrik also has brought his class to the AWCI classroom in Harrison and will be there again in late July.

Please, Do Not Leave It for the Next Watchmaker

Not long after attending an old friend's funeral service, his widow sent his vintage watch to me for repair. She wanted to present this watch to her son in running condition so that he would be able to wear it as a reliable timekeeper. It seemed like a simple enough request. The movement was a Peseux caliber 2016, a two-hand model with date function, which is normally a routine repair. The routine part of this repair abruptly ended when I removed the dial to find that someone had broken a dial screw while installing the dial. Instead of taking the time to remove and replace that screw, the repairperson left the problem as an unpleasant surprise for the next watchmaker, who would have to remedy it. Because the screw was broken in the fully tightened position, it held the dial leg securely in place. I was able to carefully remove the dial with a minimum amount of damage to that dial leg caused by the tip of the screw marring the leg.

Damaged dial screws are among the most difficult screws in a watch to remove. That damage can involve a screwhead broken off, a screw badly rusted in the plate, or the incorrect screw forced into the plate until the threads seize and the screw cannot be loosened or tightened. The next step is to determine the best way to remove the screw. If one is fortunate, the screw threads are not seized or rusty and, in many instances, that screw can be carefully coaxed out of its hole. A sharp needle is often helpful to push the top of the screw counterclockwise. Another handy tool is the Bergeon broken screw removal tool (ref. 30209). The tip of an appropriate broach from that tool may be able to generate sufficient friction with the broken screw to unscrew the broken piece from the plate. If these easy first steps are unsuccessful, then removal by chemical action may be the only way to get that screw out of the plate. My favorite chemical for removing broken screws is mild 5% acetic acid (aka white vinegar), available from your favorite grocery store. The vinegar will slowly and selectively attack steel parts on a watch plate without doing any harm to the non-steel parts of the plate. Before proceeding with this chemical treatment, all the other steel parts must be removed from the plate—steel minute-wheel posts, shock absorber springs, etc. The only steel part left on

the plate should be the one that needs to be chemically removed. Otherwise, any steel parts attached to the plate will also be attacked along with the broken screw. This is a slow process that can take from several hours to several days. I immerse the plate in two or three ounces of vinegar poured into a small glass custard bowl. After several hours, I float that bowl in the ultrasonic tank for a minute or so while the ultrasonic tank is turned on as if for cleaning watch bracelets. The ultrasonic action will loosen and float away the residue of the corroded steel to expose a fresh surface for the vinegar to attack. Then I replace the vinegar in the bowl with a few more ounces of fresh vinegar and repeat this process of soaking, ultrasonic vibration, and replacing the vinegar until the screw is dissolved away. Once the screw is gone, I thoroughly rinse the plate with a small amount of baking soda-and-water solution to neutralize any remaining acid on the plate. A rinse with clean water before drying finishes the job. All steel parts that were previously removed may now be replaced, and the plate and movement parts will be ready for regular cleaning and service. For this particular watch, the remaining part of the broken screw was about 3mm long with only the ends exposed to the vinegar. Because so little surface area was exposed to the vinegar, the chemical treatment took about two days. When it was finished, though, the plate was not damaged and the plating remained intact.

The Bergeon broken screw removal tool (ref. 30209).

I know the temptation is always there to leave such problems for the next watchmaker. The watch will run fine with a broken dial screw, but the solution to the problem is only postponed until the next repair. If you break it, please fix it: don't leave it for the next watchmaker.

Vintage Repair—Opportunity Knocks

A few weeks ago, the manager of the watch repair department in a very busy, high-quality jewelry store asked if I could recommend a watchmaker qualified to repair vintage watches. This store has four in-house watchmakers, three of whom service the watch brands sold by that store, while the fourth handled the vintage repairs. That was until the watchmaker who specialized in vintage repairs suddenly passed away. None of the other three watchmakers has significant experience servicing vintage watches. This store is not unique in that respect. In the past year, I have received several inquiries from stores seeking a watchmaker versed in the repair of vintage watches. The common thread of these conversations is that recent graduates from accredited watchmaking schools are focused upon the repair of current and recent production movements for which they have been trained. Most of these graduates have had little or no training, nor experience, servicing movements made 30 or more years ago.

Because of the declining number of watchmakers with that experience, the vintage-watch-repair market has evolved into a very specialized niche craft. Therein lies an opportunity for young watchmakers who wish to grow their knowledge base and skill set beyond being specialists for the repair of a limited number of recently produced movements. There is no 90-day class in vintage repair. If there were, it would only be an introductory class, because a lifetime of gradual growth in that specialty only ends in retirement or death. There seems to be no limit to how much knowledge a watchmaker can acquire in a lifetime. For those with a passion to learn more, vintage watch repair provides an opportunity for growth and additional income, plus the job security it can provide in light of the demand for vintage repair far outstripping the supply of qualified watchmakers.

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.

Horological Society of New York (HSNY)

The following information was obtained from The Horologist's Loupe, *submitted by Carolina Navarro, Director of Public Relations, HSNY, Copyright©2019. Published by the Horological Society of New York, Inc.; all rights reserved.*

For the June HSNY meeting, Joseph Kirk presented "Spring Drive: A True Expression of Nature and Time." Joseph Kirk is national training manager for Grand Seiko Corporation of America. Spring Drive is a movement technology developed in-house by Seiko Epson, formerly known as Suwa Seikosha, in the Nagano Prefecture of Japan. Development of the technology started in 1977 and debuted in 1999 in limited quantity in Japan. In 2004, Spring Drive became available globally in Seiko, Credor, and Grand Seiko watches. At the June meeting, Joseph Kirk discussed the many hurdles that Seiko overcame with the Spring Drive before it could be introduced to the world. Spring Drive movements combine the best aspects of mechanical watchmaking. The end result is a spring-driven watch that achieves quartz-like accuracy. This unique movement type expresses time unlike others, with a completely continuous gliding seconds hand with no sweep or tick.

Seiko Spring Drive movement.

HSNY OFFICERS

President: Nicholas Manousos

Vice President: John Tiefert

Director of Public Relations: Carolina Navarro · carolina@hs-ny.org

Minnesota Clockmakers Guild (MCG)

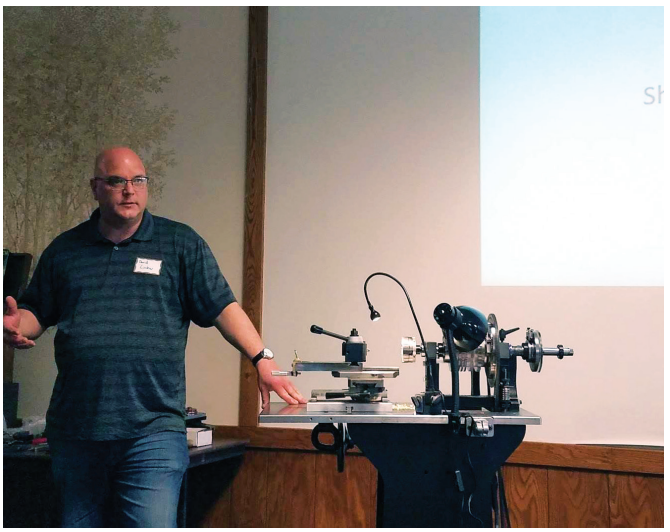
The June MCG program covered the Fusion 360 CAD (computer-aided drafting) app. There was a demonstration in drawing a simple gear and then printing it on a Prusa i3 MK2S 3-D printer. Also covered were the different types of 3-D printers and how they work, the history of 3-D printing, and some of the up and coming 3-D technologies.

The 93rd Annual Joint MCG/MWCA Symposium

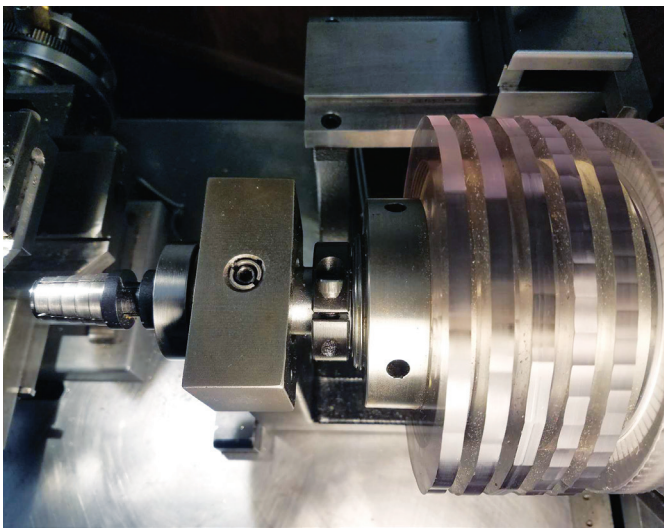
Over the course of two days, the MCG/MWCA Symposium covered many topics; some are listed in the following description. Stephen Franke, David Lindow, Doug Thompson, Tom Tarnow, and Fred Fisher gave presentations. MWCA president, Fred Fisher, presented Wes Cutter with the 2019 AWCI Meritorious Service Award in Horology. Tom Tarnow, Alchemy Mirror Resilvering, St. Paul, Minnesota, talked about his process for resilvering mirrors. David Lindow gave several presentations, beginning with "Shop Tour," which showed the machines, equipment, and processes used for the reproduction of the clock movements he manufactures. Lindow also shared a large collection of various clock movements and used them to tell the history of clock developments from 1600 to present. Lindow presented "The History of the Rose Engine from Kings to Craftsmen." He showed examples of various historical rose engines and their owners, turnings they had made, and the different materials used. Stephen Franke gave a presentation on "Creation of a Complex Regulator Timepiece." Franke also demonstrated gear cutting, using a David Lindow-manufactured wheel cutting engine. Doug Thompson gave an update on the topics and happenings at the 2018 AWCI National Convention in Austin, Texas. Door prizes were available from a variety of vendors, and every attendee got at least two items.

Attendees at the May 4, 2019 joint MCG/MWCA Symposium

Stephen Franke demonstrated replacement gear cutting.



David Lindow discussed clock movement developments from 1600 to present time.



Rosettes on a rose engine spindle.

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President's Message

institute, but to educate them about professional watchmakers and the level of service they can provide. I have talked about this often in my messages, but I will express my thoughts again. The consumers hold all the cards with the money they are investing in their purchases. Watch collectors and anyone who buys a watch can choose whether or not to buy watches that have a difficult path to after-sales service. If the consumers don't buy watches that won't supply parts to watchmakers, then the watch companies may choose different policies. Watch companies will make decisions that they feel benefit their brand. We can certainly speculate on what we think is best for them, but we usually are looking at these decisions from a completely different perspective. It's important to remember to be professional when talking about your view of the current climate of the after-sales service industry. You can quickly burn a lot of bridges that can't easily be rebuilt by posting negative things online or talking negatively around our extremely small community.

Interacting with collectors and watch enthusiasts has become a necessity of the modern watchmaker. If you are not currently involved in a local collector group, you are not doing yourself any favors to change the dynamic of access to spare parts. There are so many groups out there that meet on a regular basis, and anybody can find one close to them to join. Search Facebook and Instagram for one close to you. If you are having trouble finding one, call or visit your local luxury watch retailers. If the dealers are knowledgeable, chances are they know exactly what groups there are and can even help you get in contact with them.

In the past, watchmakers have relied on a "top down" approach with the industry. Watchmakers would build relationships with watch brands, prove themselves, and hopefully develop a business relationship if the qualifications are met. The new tactic I am suggesting is a "bottom up" approach. One where watchmakers build relationships with the end user instead of the watch brands and let the collectors go to bat for them when it comes to demanding parts and training for their local watchmaker. I fully believe this is the best way to change the current dynamic of after-sales service, and I am confident we can make an impact if enough of us are willing to maintain a professional attitude while changing our mindset of how to solve the problem.

Executive Director's Message

We now have to follow up with dozens of jewelry stores who have requested training for their staff and many more who want our support to host events for watch collectors. We inspired many stores to upgrade their workshops to create a better environment for their watchmakers.

Now, with all of this excitement you may think we are distracted from everything else going on in the industry. Let me assure you that we are well aware that Rolex has recently executed another round of account closures. They are putting a huge focus on the "plaque program," which provides Official Rolex Jewelers with expanded training and visibility with the opportunity of providing authorized service to customers, including warranty service, but which has resulted in the elimination of many independent points of service. Each closure letter comes with an offer to buy back Rolex-specific tools and parts, but I doubt many will take the offer because the loss of an account will probably not stop most watchmakers from continuing to service the product. We estimate that the number of independent Rolex parts accounts in the United States is approximately 50, and there is no evidence that Rolex is opening new parts accounts. If you are a watchmaker who has lost the support of Rolex, we feel your pain. We believe that in many cases the decision to close an account has nothing to do with quality of work or workshop organization, but is purely driven by profit motives. We have even seen these closures affect individuals who received their training from Rolex-sponsored schools. We know this is difficult for any business, and we believe it is bad for the industry as a whole. We believe this will inevitably result in higher prices and lower quality of service for Rolex owners. Some of the conversations we had at JCK made it clear that, throughout the industry, people feel this change may finally result in something positive for the watchmaker. Many jewelry

store owners are aware that the watchmaker they used for many years no longer has access to genuine Rolex parts, and it is of grave concern to them. We encouraged these store owners to reach out to Rolex directly to advocate on behalf of their watchmaker and to express their displeasure. If you have lost your Rolex account, you might encourage your customers, especially your trade accounts, to do the same.

We continue to advocate on your behalf as well. We have regular conversations with representatives from the major brands, and they know where AWCI stands, which is to "have an educated and passionate horological community. . . with the resources to provide quality goods and services." (From AWCI's Vision Statement.) This includes access to training, tools, and genuine parts. As we have advocated for your needs over the years, we have seen the major brands reduce their financial contributions to AWCI. The annual dues income from brands with restrictive parts policies is a very small percentage of our overall annual revenue.

Watchmaking continues to be a viable profession, but the outlook certainly isn't the same as it was many years ago. For those entering the profession, it is much more likely that they will work for a retail jeweler or a brand service center. The "easy money" from fixing Rolex isn't quite as easy as it used to be. You will need to use new resources to locate the parts you need. Your relationships with fellow watchmakers are more important now than ever, and you need to work as efficiently as possible to compete financially when paying extra premiums for parts.

Now, I don't want to end this month's message on a negative note so I will circle back to our mobile classroom. AWCI recognizes that to continue our success, we must be connected within the industry. Our mobile classroom is opening new doors for the institute. The work we put in to establish a quality certification over the past 15 years is paying off, and the Build a Watch and collector's events are expanding our recognition. At each event we host, more consumers develop confidence in AWCI and our members. Each lunchtime conversation makes more consumers aware of the struggles we face. These events are not only a good source of revenue for the institute, but they also help us develop allies who believe in our mission and who will advocate for each of you. I invite and encourage you to become more involved—not only with your affiliate chapters but also with your local collector's groups and with advocacy groups like repair.org, who will help us make our profession better for all.

Archie Perkins Mobile Horology Classroom Takes to the Road

On May 14, the Archie Perkins Mobile Horology Classroom left the parking lot of AWCI in Harrison, Ohio, and with Jordan Ficklin at the wheel began its journey westward. The first stop was the Bay Area Maker Faire in San Mateo, California. After introducing many people to horology at the Maker Faire, Jordan then turned the mobile classroom eastward for engagements in Salt Lake City, Utah, and Las Vegas, Nevada. Here are some pictures from the Salt Lake City events and the JCK Las Vegas show.

Roland G. Murphy of RGM Watch Co. helps a student in the Las Vegas Build a Watch event.

Students from the Las Vegas Build a Watch class show off their newly built watches with instructors Aaron Recksiek and Roland Murphy.

Aaron Recksiek with Judy and Richard Perkins on the mobile classroom with a photo of Archie Perkins in the background.

Students assembling their clocks at the Salt Lake City Build a Clock class held on the Archie Perkins Mobile Horology Classroom at the Mt. Olympus Clock Shop.

The television on the outside of the mobile classroom gives show attendees a glimpse at the training taking place inside during the JCK Las Vegas show.

Ribbon-cutting ceremony, left to right, Martin Schürch, Witschi; Johnny Veillard, Bergeon; Marek Birkenstock, Beco Technic; Miguel Bonillo, Elma; Craig Stone; Aaron Recksiek; Jeremy Bennett, Renata Batteries; Gary Borel, Jules Borel & Co; Richard Perkins; Roland G. Murphy, RGM Watch Co.; Judy Perkins; Henry Kessler, Kessler Batteries; and Jordan Ficklin.

Tom Schomaker, AWCI instructor, presenting "Identifying Fake Watches" at the JCK Las Vegas show.

The mobile classroom in downtown Salt Lake City for the Build a Watch event.

Students at the Salt Lake City Build a Watch Event.

A student at the Build a Watch event lubricates the barrel arbor of his watch movement before installing it.

One of the missions of the Archie Perkins Mobile Horology Classroom is to introduce young people to horology as a career. This goal will be accomplished by visiting career days at high schools as well as interacting with young people at Maker Faires. The mobile classroom hosted its first youngsters in May when the children of Jordan Ficklin, executive director, and Jason Champion, education director, got on board for a lesson in dressing screwdrivers.

Left row, front to back, Nathan Champion, Shaloah Champion (Jason's wife), Cody Champion. Right row, front to back, Jacey Champion, Jonah Ficklin.

Jacey Champion gets practice working with a loupe.

Brothers (Skyler Ficklin, left, and Oliver Ficklin, right) work on their screwdrivers.

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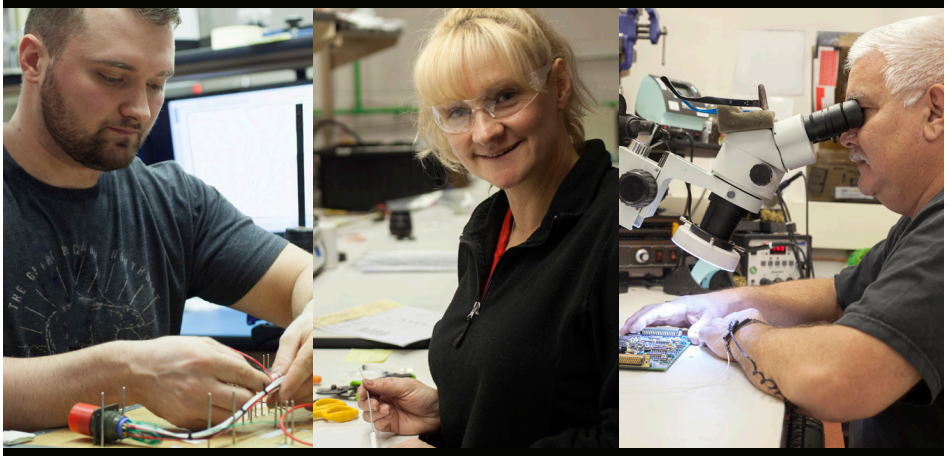

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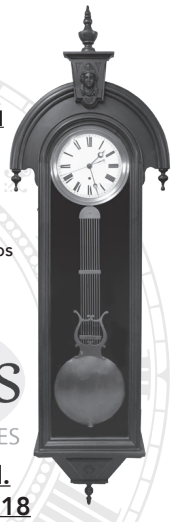

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