Horologica

Contributor this issue Bob Frishman

Share reviews and announcements of new and interesting books, websites, digital media programs, periodicals, exhibits, and all else pertaining to horology. Send contributions to Editor Therese Umerlik at tumerlik@nawcc.org or NAWCC, Inc., 514 Poplar St., Columbia, PA 17512-2130, c/o Publications Department.

Japan Clock Museum and Repair School

The 38th emperor of Japan, Tenji (626-672), is the Shinto deity of clocks. Venerated today at his massive shrine on the outskirts of Kyoto, he earned the horological honor for bringing to Japan its first clock, a Chinese-style clepsydra. The spirit of Tenji also has other important associations, but every June 10 a special ceremony at his shrine marks his connection to timekeeping.

On the expansive grounds of the Tenji shrine (Figure 1) is the Omi Jingu Clock Museum and Japan's only full-time school of watch and clock repair. In April 2015, after a two-week "Walk Japan" hiking trip in southern Japan, my wife and I visited the shrine, museum, and school. For our days in Kyoto we hired a wonderful Tours by Locals guide, Meiko Tabata, who arranged and accompanied our visit.

The school's instructor, Mitsutoshi Ito (Figure 2), generously offered to meet us on a rainy Sunday and share many details of the museum's exhibits and the school's operation. School terms begin every April, after the finale of the much-awaited blooming of millions of wild cherry trees (Figure 3), and the classroom was ready for the 30 new and returning students in the three-year program.

Our visit began in the museum, part of the temple complex. Photography normally is not permitted, but I was allowed to take pictures through the glass fronts of the cases (Figure 4). Although relatively small, the museum has several fine examples of early Japanese clocks, including what it claims to be the first Japanese clock fitted with a pendulum (Figure 5).

The Japanese-language labels for clocks of special importance had round blue signs with a pointing finger. Our guide translated some of the labels as we moved through the exhibits, and I also had translation assistance from a Japanese-speaking NAWCC intern, Yujin Bronner, who by good fortune happened to be in Columbia, PA, as I was preparing this article.

Bronner provided his English versions of some of the informative signs and labels.

Figure 1. Tenji shrine near Kyoto.

Two examples follow:

The History of Clocks. The history of clocks started approximately 4,000 years ago. The length of the shadows of rocks and trees changed, depending on the position of the sun. Humans recognized that time could be measured by knowing the pattern of the shadow. The result of this realization is the catalyst to the invention of the sundial. The sundial was useless when it was dark or cloudy outside, so the water clock, sand clock, and fire clock were invented. In the beginning these clocks did not create sound, but eventually they were designed to create sound. Seven hundred years ago the first relatively simple mechanical clock was created. Over the years the mechanical clock was improved upon and became the modern clock that we know today. The origin of Japanese clocks started about 626-671 AD with Emperor Tenji's water clock. Most likely the emperor did not actually invent the clock but was based on a Chinese water clock.

According to records the first mechanical clock was created by clockmaker Tuda Sukezaemon. The clock was created in 1598 for Tukugawa Ieyasu, a Japanese shogun. What the clock looks like is unknown.

Wadokei (Japanese clock). Wadokei is a clock created in Japan in the Edo period. Wadokei borrowed mechanical technology from European clocks but incorporated traditional Japanese design. Eventually, these clocks started reflecting the art culture of Japan and developed into its own art form. It's said that there is no such thing as two identical Wadokei. Each wadokei is distinct in its decoration of the exterior, the letters on the dial, the hand of the clock, and the shape of the gears because the wadokei was not mass-produced but was created by master clockmakers with time and care.

Figure 2, top right. Mitsutoshi Ito, watch and clock repair instructor, stands with model of Emperor Tenji's water clock.

Figure 3. Side view of the Omi Jingu Clock Museum.

Figure 4. Display case in the Omi Jingu Clock Museum.

Traditional Japanese clocks indicated the hours according to the old system of 6-day and 6-night hours, lengthening and shortening seasonally. Some featured adjustable sliding hour indicators; others switch daily between two foliot escapements. Examples of both methods could be viewed at the museum. This system lasted until 1873 when Japan converted to the European method of 24 equal hours per day. Striking also was different with hours counted on bells ringing from nine to four, with nine dings announcing midnight and noon. These clocks appear occasionally at auctions in this country (Figures 6 and 7); several were offered at the Skinner auction in Marlborough, MA, this past April. The article about this auction

Figure 5, right. Side view of reportedly Japan's first pendulum-regulated clock.

Figure 6, far right. Early Japanese floorstanding clock.

Figure 7, left. Early weight-driven Japanese clock with foliot escapement.

Figure 8. Seikosha multidial wall clock.

begins on page 19 of this issue of the *Watch & Clock Bulletin*.

In addition to the ancient timekeepers, the museum displayed more modern clocks and watches and some clocks from other countries. An unusual Waltham floor clock had a dedication from its Japanese donor, and a standard Seth Thomas school clock had particularly esteemed quality. I jokingly offered to send the museum dozens more. Also hanging were a few of the smaller Japanese school clocks (Figure 8), manufactured in the early twentieth century, that were imported here much later in huge numbers and heavily marketed by Pony Express as genuine antique clocks, not always revealing their provenance. I have repaired many of these for owners who thought they had an American clock. I pointed out to them the basic brass two-train movements that are nearly identical to Connecticut clocks of the same period.

Ito then escorted us to the nearby clock repair school. Our guide, Meiko Tabata, later emailed me her translation of a portion of the school's brochure:

> The school was founded in April 1969 as "Omi Tokei Megane Hoshoku Senmon-Gakuin" (Omi Clock Glasses Jewelry Vocational School) as an educational and training institution affiliated with the clock museum and then, in accordance with the amendment to the School Education Act in 1976, it became "Omi Tokei Megane Hoshoku Senmon Gakko" (Senmon Gakko literally means "vocational school"). In English, both "Senmon-Gakuin" and "Senmon Gakko" are translated as "vocational school" but before the law was changed, vocational schools were not accepted right along with universities and two-year colleges as legitimate educational institutions for high school graduates. In 2005 the school established the department of clocks.

As is customary when entering most Japanese rooms, we removed our shoes and donned slippers. One room with desks was used mainly for administration, but it had a wall full of clocks recently serviced by the students. I was shown a typical Connecticut-style movement, similar to the one I battled during my first American Watch-

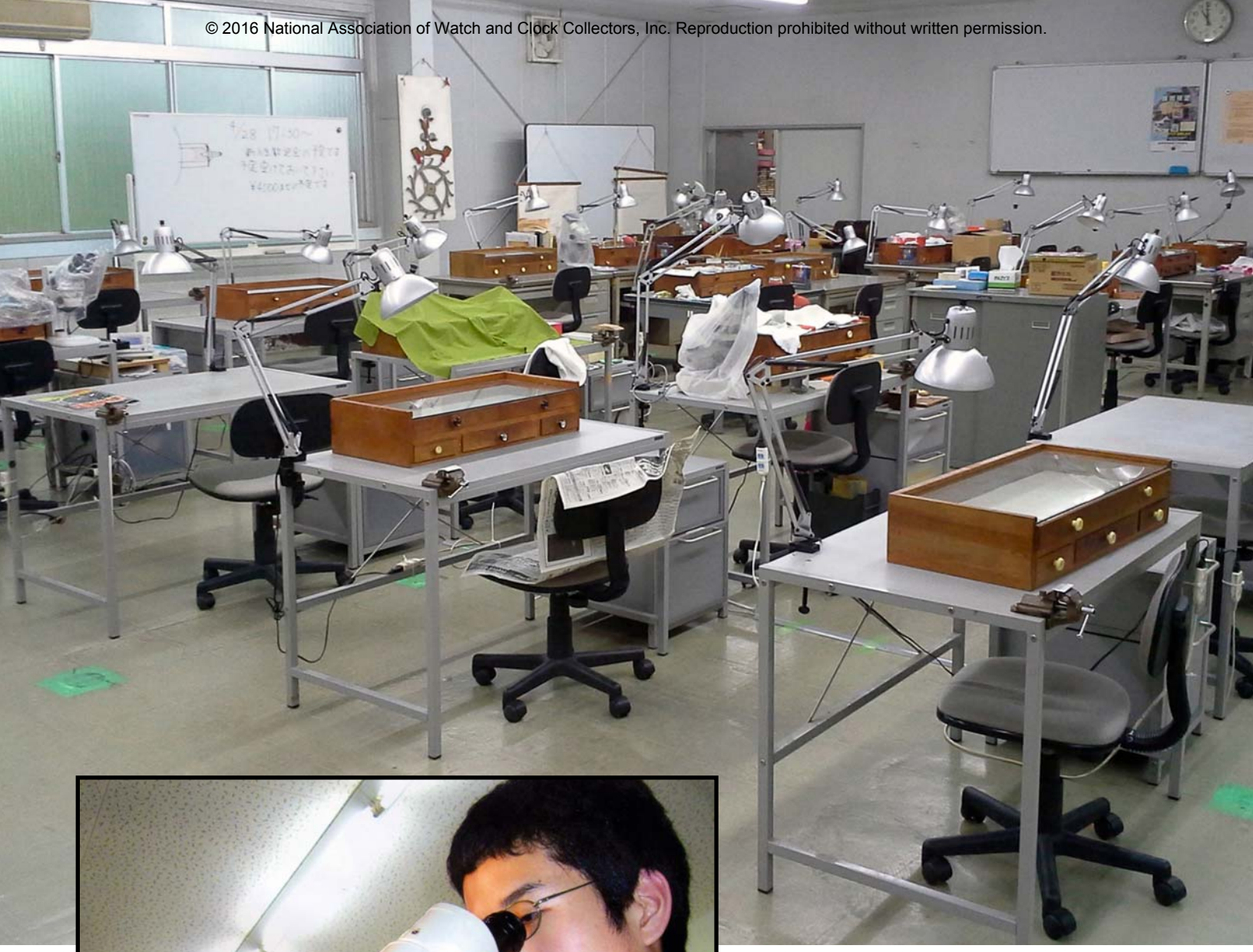

Figure 9. Classroom of the Omi Tokei Megane Hoshoku Senmon Gakko clock repair school.

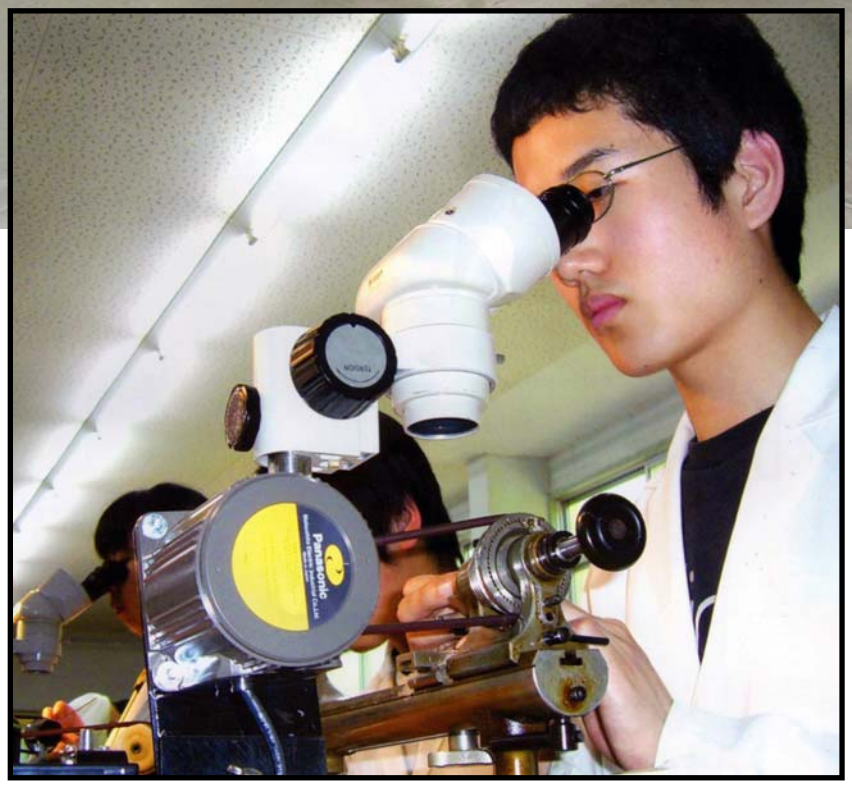

Figure 10. Student of the clock repair school from the Omi Tokei Megane Hoshoku Senmon Gakko clock repair school's brochure.

makers-Clockmakers Institute clock repair class in the 1980s. Theirs had several stickers showing names of students who had worked on it. I also saw electric, electronic, and quartz movements that their students learn to repair and replace.

The second room was the classroom (Figures 9 and 10), with rows of workbenches awaiting the trainees who arrived that week. Farthest from the door were the stations of the third-year students; freshmen were nearest the entrance. After the death of his mentor, Ito had been one of two instructors, but a recent graduate was about to join him as a third teacher. Additional instructors periodically visit to teach classes on jewelry and eyeglass repairs. Students pay approximately

$7,000 per year in tuition, plus living expenses. They range in age from teenagers to the oldest at age 43, who was preparing to take over his uncle's shop. The others most likely will find positions in stores and firms still needing these skilled services.

Of course, all classes are in Japanese, so potential English-speaking students would need to learn the language first, a task probably as difficult as clock making. It would be necessary, too, for viewing the school's website at www.tokei-co.org.

In the museum I also saw a few Japanese prints with clocks within the image (Figure 11), which were donated by a clock repair shop that had closed. Of course, they drew my attention because of my Horology in Art feature in the *Watch & Clock Bulletin*. No Japanese-language skills were required to appreciate these or to thoroughly enjoy our day immersed in horology and horology instruction in that beautiful Japanese setting.

About the Author

Bob Frishman has repaired, restored, collected, sold, and researched antique timekeepers since 1980. His business, Bell-Time Clocks, is based in Andover, MA. He lectures regularly about the history, science, and culture of mechanical timekeeping, he has authored many articles for the *NAWCC Bulletin* and the *Watch & Clock Bulletin*, and he can be reached via www.bell-time.com. He is an NAWCC Fellow and is chair of the Ward Francillon Time Symposium Committee.

Figure 11. Print at the Omi Jingu Clock Museum.

John Harrison's Fortune

It was maybe his wife
Surprised scrubbing the kitchen floor
Or his sons playing woodman
When gentleman should have done
Or those fops in their wigs
Whose longitude was constellations
And storms against his name
Or his genius and grit
And uncommon faith
That propelled this common
Carpenter's son
40 years toward the prize

A retired dean from Harvard University's Division of Continuing Education, where he currently teaches courses on French studies and management, Comeau thought NAWCC members would enjoy a poem about John Harrison (1693-1776), the carpenter and clockmaker who for 40 years struggled against people and mechanisms before solving the problem of determining longitude at sea. His prize would have made him very rich today.