



Written by [William P. Hoar](#) on September 26, 2023

Published in the October 16, 2023 issue of [the New American](#) magazine. Vol. 39, No. 19

Taking Time Apart

Many think that counting time is not nearly as important as making time count. A few do both well. Here we have one such. Rebecca Struthers, the author of *Hands of Time*, has for years honed her skills in making delicate, accurate heritage watches, and now she has crafted a valuable chronicle that skillfully relates how timepieces relate to humanity's history.

Along the way, we meet crowned heads and the impoverished, journey from the Mariana Trench in the Pacific to the top of Mount Everest, and reach the Earth's poles, the moon, and beyond. On close examination, our literary loop includes a look through a magnifying loupe at, for instance, a "detached lever escapement" first developed in 1754 that is still used in virtually all mechanical watches today.

At one point, we are examining the possible origins of the 24-hour day in an early Mesopotamian civilization; at another moment, we learn of the potential importance of a "Deep Space Atomic Clock." Helping our passage is an examination of the maritime navigational "quest for longitude."

Anecdotes abound, from a Rolex watch that was used in a daring mission within a prison camp in World War II (inspiring the movie *The Great Escape*) to Shakespeare's nod to an early watch with a ring dial and a wrist-strap.

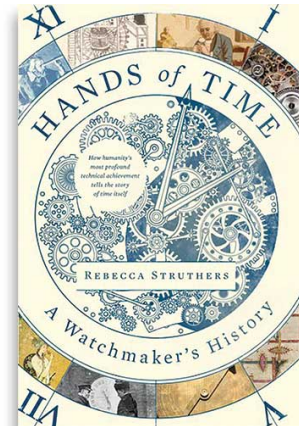
Dig deeper and you can astonish your friends when you slyly drop a factoid from 1088 about how astronomer Su Song in China's Henan province was commissioned by the emperor to create the world's finest water clock — and, lo, just eight years later, there was a 40-foot-high hydromechanical celestial clepsydra. It was, we learn, the first moment in history "when the 'tick, tock' sound of a clock was heard."

The word *time* is, according to our timekeeper, the most commonly used noun in the English language. As the author says, "Our ability to do business, structure our day, and access life-saving developments in sciences and medicine all rely on — are, in fact, made possible by — access to accurate time."

Time marches on — in this case, with a historian's fascinating accompaniment.

Too Late for the "Golden Age"

The time-traveling we experience encompasses eras when time was essentially public, perhaps restricted to a church tower at a town center, to portable timekeeping — first, when just the wealthy had luxury pieces, to more recent years, when watches have become accessible to virtually everyone.



Hands of Time: A Watchmaker's History, by Rebecca Struthers, New York: Harper, 2023, 280 pages, hardcover.



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While chapters generally examine major historical events, there is always a personal side to include — that of the author, Rebecca Struthers, and her husband and fellow watchmaker, Craig Struthers (whose illustrations/custom line drawings add appreciably to the volume under review).

After dropping out of school at age 17 in Birmingham, England, Rebecca Struthers then took a silversmithing and jewelry course, eventually becoming (in 2017) the first practicing watchmaker in British history to earn a Ph.D. in antiquarian horology (the study of the history of timekeeping). Here is the self-deprecating author's self-description: "a socially awkward, tattooed woman, raised in a working-class household." If "someone like me," she goes on, "can become a master watchmaker, anyone can."

The watchmaking workshop that she and Craig co-founded in 2012 — and we get looks at their travails, financial and personal — is not one from the golden era of watchmaking (which gets a complete chapter). Most of their tools and machines, as we find out, are 50 to 150 years old, with skills also from a bygone time.

In the "golden age" of watchmaking, notes the author, "that ran from the seventeenth and eighteenth centuries, Britain was the centre of the watchmaking world." Now such artisans "are a rare breed," and the course that they trained in no longer exists; "artisanal watchmaking" has been officially listed as an endangered skill in the U.K. In her chapter about "working," Rebecca Struthers points out that, counting their own efforts, "British watchmakers now produce considerably fewer than 100 watches a year."

Beyond the detailed illustrations sprinkled generously in *Hands of Time*, there is a section of full-color photographs of many of the timepieces mentioned in the copy, an extensive bibliography, a list of pertinent resources (such as museums), and a serviceable index. A segment near the end provides a guide about how to repair a watch. After looking at the associated illustration of an "exploded pocket-watch movement," it's clear that we should leave that job to the pros. Before its release this summer by Harper in the United States, the book was published by Hodder & Stoughton, an imprint of Hachette UK. Befitting its often extravagant subject, the book is handsome.

Its illustrated glossary is invaluable should you be unclear about some details, for instance, of blued steel; *champlevé* style; how a chronometer earns that title; *établissage* production-line manufacturing; piezoelectricity, which is produced by quartz crystal subjected to mechanical stress; and the *tourbillon* device produced by Abraham-Louis Breguet in 1801. Of course, if the reader already knows all of that, and more, he might skip a few pages.

One of the stars of the golden-era chapter is Thomas Mudge, whose career was considerably lifted by his patrons. He became "renowned for the mechanical innovations from his watches," recalls the author. He made, for example, a complicated "grade sonnerie watch for King Ferdinand of Spain — which was set into the top of a walking cane." Such watches have fine "complications," with their mechanisms chiming both on the hour and the quarter-hour "if the owner wants to hear it in between." Mudge also was the first watchmaker to integrate a "perpetual calendar."

Another of his commissions came from King George III in 1770 for his wife, Queen Charlotte. That "Queen's watch" was considered by Mudge to be the "most perfect" ever made that can be worn in the pocket. It features, recalls Struthers, "the earliest known example of Mudge's most ground-breaking invention, the detached lever escapement."



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Rebecca Struthers (twitter.com/DrStruthers)



Timepieces for Queens, Trenches

Another royal watch combines European religious history with the story of watchmakers of Huguenot descent. There are plenty of background details provided with the discussion of the 16th-century “death skull” once believed to have belonged to Mary, Queen of Scots. Skulls were frequently found in paintings and accompanied by timepieces. As the author says, death and time go hand in hand: “Time is the unstoppable beat that counts down the hours of our life.” After reviewing the related background, Struthers comments that it is “powerfully ironic that Mary’s watch, a potent religious talisman for a Catholic woman in an inhospitably Protestant country, was very likely made by a Protestant artisan in an equally hostile Catholic France.”

Another “Queen’s watch,” also known as the “Mona Lisa of watches,” makes an extensive appearance. Designed to be worn by Marie Antoinette, it was made by Abraham-Louis Breguet. (The queen was guillotined before she ever saw it, and the piece was not completed until 1827.) The author calls it the “most complicated, beautiful and valuable watch ever made.” Among other aspects, the self-winding device had “power reserve indication (it could run for forty-eight hours from full wind), a chronograph, a thermometer and a perpetual calendar à la Mudge. In total, the watch required 823 parts squeezed into a 6-centimetre pocket watch and is still considered one of the most complicated watches in the world.”

(Unfortunately, the author does make here, and in a few other social-commentary spots, some simplistic or naïve asides about revolutions supposedly being caused by hunger.)

Breguet’s expertise also included diplomacy. The author notes that both Napoleon and the Duke of Wellington were among his customers. “Napoleon was so taken with his work he visited Breguet’s factory in disguise on several occasions,” we are told. She tells her stories well, and often cleverly. This combination means (you can almost hear a chortle), that “it is quite possible that Abraham-Louis Breguet was the unofficial timekeeper of the Battle of Waterloo.”

His name became legendary. Struthers recalls mentions of Breguet in Alexander Dumas’ *The Count of Monte Cristo*, by Jules Verne, and in William Makepeace Thackeray’s *Vanity Fair*, among others.



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In another section of *Hands of Time*, well beyond the deadly “skull” watches and related grim matters, Struthers largely refrains from extra commentary, describing the watches gathered “after the American bombing of Hiroshima in Japan” and how they now form a “poignant display” at a memorial park. After the atomic warhead landed on the morning of August 6, 1945, “80,000 people were killed outright. The bomb created pressure waves that travelled faster than the speed of sound. Later, it was discovered that each one of the watches caught up in the blast was frozen forever at the time of the detonation: 8:15 a.m.”

She also goes into the “trench wrist watches” of World War I, developed in part because, when troops were crawling through the trenches, it was almost impossible to reach safely for a pocket watch.

Dutch Forgeries, U.S. Competition

So-called Dutch forgery watches were a main part of the author’s doctoral studies, and, not surprisingly, they also play a substantial role in this book. As the author explains, Dutch merchants in the 18th century commissioned such pieces knowing that consumers wanted London-made pieces, but the fake watches were not generally made in the Dutch Republic or England. Rather, they were made in “manufactories” in Switzerland, using a production system known as *établissage*.

The system streamlined production and “manufactories could create huge numbers of watches.” While Britain’s largest workshop, according to *Hands of Time*, “could produce a few thousand watches a year, a Swiss manufactory could produce 40,000. This completely revolutionised the industry. As a result of *établissage*, European watch production rose dramatically over the course of the eighteenth century, reaching an estimated 400,000 per year in the last quarter of the century, possibly even more.”

American competition added to the pain of British watchmakers. As we read, if the “Dutch forgeries had left the British industry walking wounded, the sheer scale and immaculate organisation of American mass production delt [*sic*] the death blow.” Watches were no longer just a status symbol of the wealthy or those acting as if they were. Ingersoll Watch Company in New York, a mail-order business, had a lot to say about that transformation. In 1896, it released “the cheapest pocket watch so far, marketed for just \$1, the price of a day’s wage for the average working American. It was called the ‘Yankee’”. Suddenly people from all walks of life — from servants and factory and rail workers to farmers, cowboys, street traders and even their children — were able to access accurate time whenever they liked. In the twenty years that followed their release, Ingersoll sold forty million Yankee pocket watches, enough to supply over half the population of the United States at the time. Their slogan was “The watch that made the dollar famous!”

As time inexorably moved on, people changed how they wore their watches — taking them from fobs and putting them on their wrists. This too is well-covered. In the chapter called “The Watch of Action,” there are multiple examples, including the fact that “Amelia Earhart wore her Longines chronograph for two of her Atlantic crossings.”

In an aside, the author comments that readers might think that she — who lives with moving parts — might despise “no moving parts” digital watches. Yet, she acknowledges, “I still genuinely love digital watches” (but not smartwatches, one gathers, finding them “invasive”).

A quick tour relates how a Swiss entrepreneur (Nicolas Hayek) reinvigorated the analog (or analogue) watch, by creating Swatch watches. What had been, 500 years before, perhaps the most expensive



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personal luxury one could buy, could then be purchased in your local department store. You might get one in every color, as the author says. The Swatch watch “transformed our relationship with portable time.” And there’s a twist. The brand was so successful that its profits “allowed Hayek to buy up historic watch brands and inject new capital into them. The Swatch Group is now the largest conglomerate of luxury brands in the world, and owns celebrated marques like Omega, Longines, Tissot and the House of Breguet. The cheap and cheerful watch had rescued the Swiss mechanical watch industry from oblivion.”

While it is true that lost time may never be found again, this volume does help make the voyage entertaining. As our watchmaking guide puts it: “Watches not only measure time, they are a manifestation of time — signifiers of the most precious thing we have.”



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