

A Book Review

A Comprehensive Look at the Bond Family of Clockmakers

by Bob Frishman

Queen Victoria visited the Great Exhibition of the Works of Industry of All Nations on several occasions in 1851. The brainchild of her beloved husband, Prince Albert, this inaugural world's fair also was called the Crystal Palace Exhibition. She penned and published lengthy journal entries about those royal visits, but much to the chagrin of its American exhibitors, she barely mentioned America's offerings. A single paragraph, reporting on her May 19 tour, began "3rdly to America, which is certainly not very interesting...." Her sentiments were broadly echoed in the British press, ranging from ridicule to silence.

The humiliated Americans reacted in 1852 by rushing into print a hardbound volume and associated large color lithograph, both boldly titled *American Superiority at the World's Fair*. There were 566 American exhibitors, and the authors focused on 40, portraying each one's product on the color lithograph and waxing eloquent about them in the 148-page small-type book. I own a copy of this rare book, and I viewed at the Boston Athenaeum one of the only remaining fragile examples of the print edition.

A clock dial is centered on the lithograph above a portrait of photography pioneer Mathew Brady. Just below is a view of the racing yacht *America*, which had just blown away the entire British sailing squadron and captured what became known as the America's Cup. The book lavishes nearly six highly technical pages on the clock, which had earned its exhibitor, Bond & Sons of Boston, a gold medal at the fair. Anticipating the coveted medal, two of the exhibition's English organizers, Colonel Reid and Sir David Brewster, relocated the Professor Bond display from an obscure alcove to a place of prominence, calling it "...the most wonderful achievement of science which the world has seen since the days of Newton." The astronomer royal Sir George Airy was also mightily impressed and termed it "The American Method."

Details on this clock can be studied as just a small part of this comprehensive new book on the Bond family, the first about them. Author Donald Saff has devoted years to this project, as well as to building a world-class clock collection. England's Antiquarian Horological Society (AHS) must be congratulated for publishing this thick, profusely illustrated volume. There is some irony that a British society of watch and clock scholars has produced this seminal work about a premier American clockmaking family; it is perhaps a much-delayed recompense for the harsh treatment of their American cousins by the British establishment in 1851. This, however, is not mentioned in the book's foreword by AHS chairman Dr. James Nye.

The Bond-in-America story begins well before 1851. William Bond (1754-1844) emigrated from England to Maine in 1786, moved to Boston in 1790, and established a clock and watch business in downtown Boston in 1793. His son William Cranch Bond (1789-1859) at an early age became highly skilled in the trade, and he became associated with Harvard College in 1815 as the school developed plans for an astronomical observatory.

The connections between high-precision timekeeping and astronomical observations are paramount. From the first days of astronomy in Europe, good clocks were needed when studying celestial bodies, and the regular motion of the stars could regulate earthbound timepieces. This was true at Harvard, too, although the opening of its observatory was delayed until 1839. That year, William Cranch Bond became the unsalaried "astronomical observer" and began fitting out the Cambridge observatory with his own equipment. The Great Comet of 1843 stimulated Boston's interest in astronomy and generated public funds for additional observatory instruments and rooms. Finally in 1846, Bond began receiving an annual salary along with a lesser stipend for one of his talented sons, George Phillips Bond (1825-1865).

The Bond instruments that won gold in London were astronomical clocks, not simply timekeepers. In fact, the medal was granted in Class 10, Category 463, for a telescope and not for a clock. It was a new system, identified by the Bonds as a spring governor, that coupled precise telescope viewing with electric circuitry to exactly notate transits. The old system required the person at the telescope and the person at the clock to call out to one another as they recorded observations, a procedure obviously less than perfect. The innovation also is known as a drum chronograph, an electromechanical clockwork device designed and fabricated by another skillful son, Richard Fifield Bond (1827-1866). Two are in the Smithsonian's collection. Unfortunately for his family and for science, Richard died at age 39 from consumption as he was perfecting a new grand concept.

Astronomy and related precision timekeeping were vital for surveying work, and in the 1840s this was being married to emerging telegraph technology to transmit time data. This brought important work for the Bond family with the U.S. Coast Survey and then with the transmission of time signals within cities, beyond their borders, and for the ever-expanding railroads. An amazingly complex overlay of hundreds of local time zones in America made this work vital and eventually led in 1883 to the establishment of the four standard time zones across our continent.

Throughout the second half of the 19th century and at several sequential Boston locations listed in the book, Bond & Sons produced and sold high-precision pendulum clocks known as astronomical regulators. They also sold and serviced marine chronometers requiring those same standards of precision for ocean navigation, and they retailed consumer-oriented decorative clocks and watches. Many of their finer instruments are at museums—including the Smithsonian and Harvard's Collection of Historical Scientific Instruments (CHSI)—and in private collections. Harvard curator Dr. Sara Schechner wrote the book's introduction. The Smithsonian National Museum of American History owns a Bond "astro" (accession number 1981.0322) that was the very one, Saff believes, displayed in 1851 in London. The Smithsonian also owns many Bond tools and machines, although, sadly, none are currently on view. A fine Bond astronomical regulator is displayed at Harvard's Science Center along with many other wonderful CHSI objects.

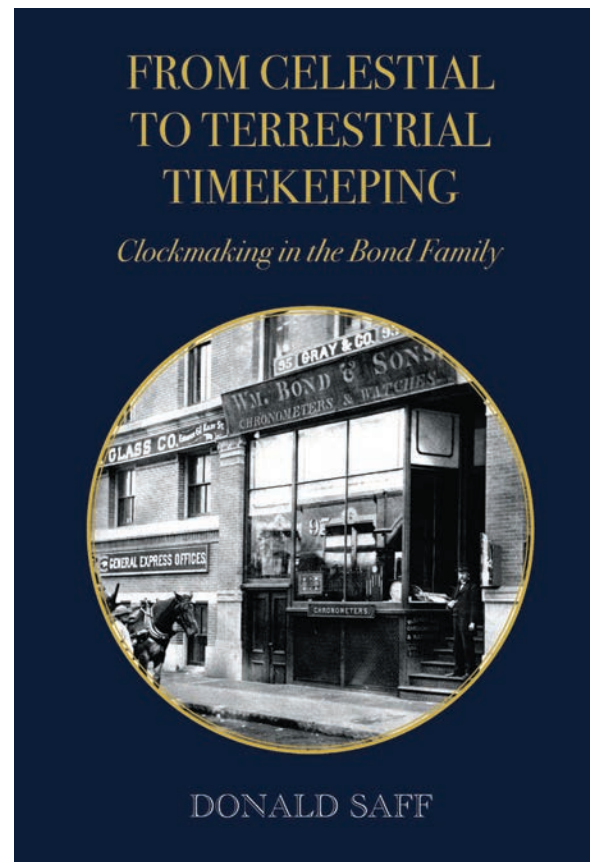
Just as with the controversial issue of how much of the Willard family's output of early 19th-century Massachusetts clocks actually was made by their own hands, and not in England or by other local tradesmen, the extent is unclear as to which Bond-signed timekeepers originated in their workshops. Although the Smithsonian's Air and Space Museum displays an early weight-driven Bond-made marine chronometer, Bond's standard spring-driven marine chronometers certainly were English-made, although inspected and serviced by the shop's skilled workers. I personally have owned two of these boxed and gimballed instruments. The larger regulator clock movements could have been made on site, but they are similar to English products, and the Bond shop definitely imported and marketed foreign timepieces. Footnote 29 on page 80 states: "The Bond daybook entry 13 September 1853 includes the purchase of three astronomical clocks from H. Barraud (London) including cases."

That footnote is an indicator of the depth of information that Don Saff has unearthed and provided on Bond family history, surveying and astronomical expeditions, time services to cities and railroads, observatories and "break circuits" for accurate time recording, and even failed experiments with novel clock escapements and multiple pendulums.

The lengthy Chapter XI fully explores three Richard Bond regulators with mesmerizing conical pendulums.

From Celestial to Terrestrial Timekeeping: Clockmaking in the Bond Family
by Donald Saff

Antiquarian Horological Society, 2019, 424 pages, hardbound. Available in North America for \$63.99 plus S/H from the National Association of Watch and Clock Collectors, (www.nawcc.org) or (717) 684-8261. Available in the U.K. and Europe from the Antiquarian Horological Society (www.ahsoc.org).



The book's dust jacket with a view of the William Bond & Sons shop at 97 Water Street, Boston.

One example stands at Harvard's CHSI, rescued in the early 1920s by collection founder David Wheatland when the clock was about to be scrapped for \$50. Another for decades was in the window of Bond Boston shops and then sold at a Skinner auction to a private collector on November 20, 2010. The third went to the observatory in Liverpool, England, where an 1877 report noted its accuracy over five months to be within three hundredths of a second; it now is in the National Museum there. Saff's enthusiasm for this trio of superlative machines is evident throughout, with sentences such as "A more elegant set of wheels more exquisitely executed would be difficult to find or produce."

At the conclusion of Chapter VII, the author offers the following words, which to me summarize his belief in the overall importance of the book's subject: "Ultimately, the business of William Bond & Son and the Harvard College Observatory were inextricably involved with, and indeed defined, the burgeoning development of the scientific community in the United States. The family was preeminent in the distribution and standardization of accurate time, the undertaking of geographic surveys, and the maintenance of communication with and understanding of the scientific community in Britain, Europe, and Russia."

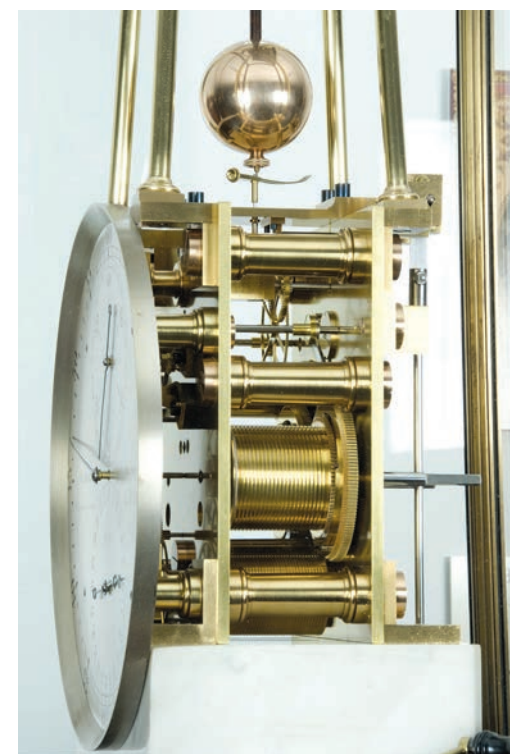
Multiple appendices add to the details and include many pages of reproduced handwritten ledger and daybook entries, photographs of clock components, and colored diagrams and drawings by museum-level restorer Richard Ketchen. The bibliography stretches from pages 254 to 273, inviting readers to dive even deeper into the sources that the author plumbed for his book. An index fills 11 pages. Nearly every page of every chapter includes at least one clear color photograph, and I was proud to provide a vintage black-and-white photo of a 19th-century Bond shop, from a stereograph, that adorns the front of the book's dust jacket. I always regretted that the photo is not clear enough to view the treasures hinted at behind the shop's front windows.

The Bond store in Boston is no more. In 1941 William Cranch Bond III retired, and the firm passed to new owners. It closed in 1977, ending a 184-year run. The Bonds and their shop are gone, but Donald Saff's book now ensures that their history and legacy will not be forgotten, even in England, where their long-reigning monarch ignored the Bonds' contributions to scientific and technological advances.

Don Saff's horological writings have appeared in print in the past, and years ago I enjoyed reading his chapter "American Precision Pendulum Clocks," included in *Precision Pendulum Clocks* by Derek Roberts (Schiffer Publishing Ltd., 2003). Saff now is researching and writing about another innovative American maker of high-precision highest-quality timekeepers, Charles Fasoldt (1819-1889), and a related book is in the offing. I have reported recently on Fasoldt clocks selling at auction and in museum displays, and I will welcome the opportunity to alert our readers about another fine book by this diligent author.



A page from *American Superiority at the World's Fair* showing Bond's award-winning instruments. Photo courtesy Bob Frishman.



Movement of Bond's conical-pendulum astronomical regulator. Photo courtesy Collection of Historical Scientific Instruments at Harvard University.



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