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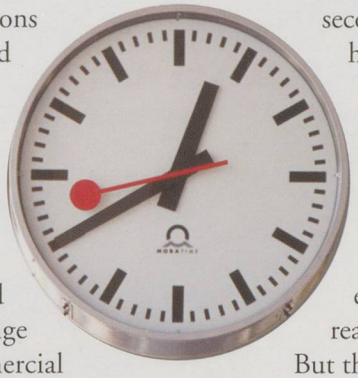
# Icon of our time (!) – The Swiss Railway Clock

## Boyd Misstear takes a brief look at one of the iconic symbols of Swiss life - and reveals some other little known connections



Countless times we have arrived at stations large and small across Switzerland, and one of the first actions is to look for the nearest clock and decide if we have sufficient time to make it to the departure platform, or perhaps make a quick purchase, or even make a comfort dash! And, like me, you probably give little thought to the modernist icon of our time that has enabled these decisions. But this is all about to change unless public sentiment (and certain commercial interests) can persuade the SBB to alter a course upon which they have quietly embarked! Under the guise of "cost saving" a decision has reportedly been made to remove the third red paddle hand and leave just two black pointers to indicate minutes and hours. Apparently it costs CHF3,250 to replace the separate second hand mechanisms within each station clock as they wear out. The accountants say 'too expensive'. This has prompted articles in the Swiss press (and abroad) challenging this policy decision. A frequent comment is that since Apple (after threats of litigation) are reputed to have paid SBB some CHF20m in 2012 for the licensing rights to use the clock design on some of their iconic products, this sum alone is more than sufficient to fund 6,000-plus replacement mechanisms.

Concern about keeping the 'Red Hand' reminds us of how this modernist, iconic clock came into existence in the first place. Railways, needing to operate to a precise timetable, are just one example of organizations with numerous integrated "components" requiring precise synchronization to function successfully. To achieve maximum cohesion, and to keep disparate parts of organizations and systems coordinated, synchronized timing is critical. This is done, to within seconds and in some situations fractions of seconds, by station slave clocks receiving pulses from a central source, a master clock. As passengers, we are satisfied to operate to within one minute – that is until of course we need to know whether those two black hands indicate 5 seconds past or 55 seconds past? It could decide whether we make or miss our train!

In 1944, as WWII was entering its final phases in Europe, a Swiss engineer by the name Hans Hilfiker (1901-1993), together with Moser-Baer Ltd., a Sumiswald-based Swiss clock manufacturer founded in 1938 by Wilhelm Moser (now known for their MOBATIME and MOBATEC brands), developed and produced a modernist clock design with no digits. In 1947 Hilfiker designed, and Moser added, a second hand in the form of a red disc-end, similar to a train conductor's paddle; however this is not like the second hand of our everyday watches and clocks. Hilfiker's design is based on a one-minute revolution of 58.5 seconds followed by 1.5 seconds standing still vertically before the minute hand clicks to the next minute. He is reported to have explained this is to "bring calm in the last moment and ease punctual train departure". Driving a second hand in this way in electromechanical clocks requires a separate motor mechanism within each unit. This mechanism has become expensive, and evidently is no longer manufactured, hence the reasoning to simply remove them when they fail. But this doesn't quite tell the whole story…

Another little known fact concerns the evolution of using a master clock, with electrical signal transmission to a large number of slave clocks, upon which the Swiss station clock depends. In his book *'Einstein's Clocks, Poincaré's Maps: Empires of Time'* (ISBN 0-393-02001-0), which describes the clocks that shaped Einstein's leap in time, Harvard science historian Peter Galison records that when one of the designs for this type of clock synchronization was handed in to the Patent Office in Bern a young patent clerk, Albert Einstein, was given the dossier to work on. Dennis Overbye, in his June 2003 New York Times review, records Einstein asking in 1905 *"What does it mean to say that a train arrives someplace - in Paris say - at 7 o'clock?"* Overbye commented *"… that you may not think you need to know something as deep as relativity to answer such a question. But Einstein needed to answer the question to invent his theory of relativity, the breakthrough that wrenched science into a new century and enshrined the equivalence of matter and energy"*. We forget that time was then measured by individual clocks and railways needed to have synchronized time to avoid crashes. Overbye recounts *"One clue to the origin of relativity can be found in something as mundane and practical as a 19th-century train schedule." "It's in as plain sight as it could possibly be"*, said Dr. Galison. Einstein then went on to study measuring time using telegraph networks and with the coordination of clocks at stations.

We must wait to see if the Swiss public, and passengers, can help reverse SBB's decision to dispense with seconds. Rather than remove the red paddle I wish all transportation systems would adopt similar time pieces to help them achieve Swiss precision with their overall operation. Let's hope common sense will prevail at SBB HQ. Anyone interested in acquiring an electronic version (with red second hand - or should that be third?) for personal use on home computers, the SBB offer on their website two versions of downloadable screen saver files, large and small, suitable for both Mac and PC. The next question may be: Will some bright accountant (an oxymoron?) find an excuse to remove the paddle from the soft version as a byte saving exercise?