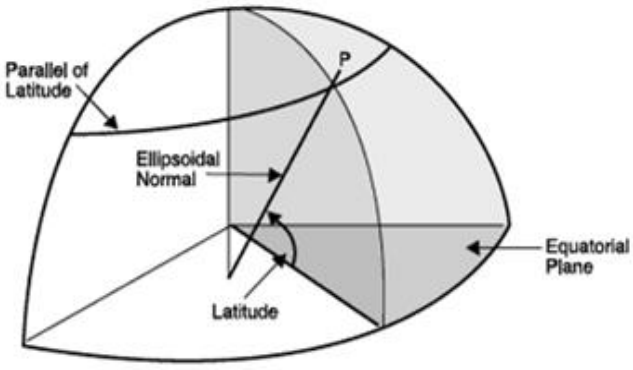
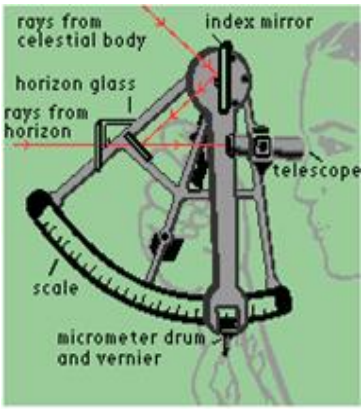
How Timekeeping Changed the World

There are many great technological innovations that have changed the world we live in. Internal combustion engines, television, microprocessors, all have a great impact on how we live. As technologies become pervasive, our expectations of them tend to rise – we expect our motor vehicles to be very reliable and efficient, we are getting used to 100s of television channels and there's no such thing as a computer that's too fast. What about your watch? Especially since the quartz revolution on the 1970s, don't you just expect it to be dead-on accurate and reliable? Even if it's a $14.95 cheapie? Not to worry, I'm not going to wallow in a sad reminiscence of the "good old days" even though I'm old enough to remember cars that one had to work on regularly. Yeah, there were some great cars a few (*OK, OK, maybe even more than a few*) decades back, but you know what? Drum brakes were not all that great at slowing one down and I never ***really*** enjoyed replacing points in my distributor (*especially on the side of the road, in the rain, after having walked to the parts store and back*). So what does all this have to do with changing the world? One word – Longitude.

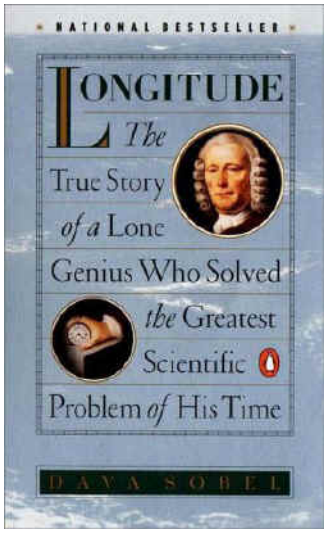


I am frequently asked to give presentations about subjects related to watches (*the scourge of fake Rolexes and watch history being popular topics*)



and I usually mention the importance of western European seafaring history in the culture of the United States. Yes sir, without those tall ships, we would not be the people we are today. Of course there are good and bad aspects to this (*wiping out native populations with small-pox, forced religious conversion, etc.*) but this discussion is centered on the reality of our present situation so let's talk business. Now way back in the 15th and 16th centuries, the expansion of trade was based in a large part of one's fleet of ships. New sources of goods, new markets to sell to, both were available by sea. Of course, one needed to know one's relative position on the planet to navigate at sea. Latitude wasn't that big a problem, sextants were readily available and a pretty accurate way to determine one's position north or south of the equator, but what about that whole east/west thing? Not that sextants weren't complicated enough (*there's that whole declination and date formula to solve*), but there was really no tool for telling how

far east or west one was from the meridian (*located in Greenwich, England – sometimes it pays to be the ruler of the seas*). Now, at long last, we get to how timekeeping changed the world.



If the earth rotates on it's axis once per day, the distance from the starting/stopping point (*Greenwich, England*) can be measured in units of time (*hours, minutes, seconds*). How far this distance is in miles depends on how far one is from the equator (*the equator would be the widest point, circumference decreasing as one move toward the north or south poles*). So… if one knows one's distance from the equator (*latitude*), one could know how many miles it takes to circle the earth at that point (*the ultimate navigator's cheat-sheet*). Now if only one could tell the relative difference in time between the place one is now and Greenwich England. Lots of things were tried, star charts, moon readings, and whatnot, but none of them worked very well. Hang on…. What about a clock! If I had an accurate clock set to Greenwich time, and compared that reading to whenever the sun was at it's highest point in the sky (*noon*) at the location I am now, I'd know the difference between the two in hours and minutes and would know my longitude! What a great deal, now I'll just duck out and buy a couple of cheap, accurate, reliable quartz wristwatches for about $15 and we're all set. Damn, not been invented yet! In fact, there really wasn't a clock that would work reliably at sea. It had to be very accurate because even a minute or two "off" and your assessment of location would be quite frighteningly wrong. Enter John Harrison, lots of trials and tribulations, and the eventual acceptance of his marine chronometer. That's right, something we take for granted – accurate, reliable, **portable** timekeeping - gave Britain a huge advantage at sea. Think of that as you look at the timepiece on your wrist right now. If it's mechanical, (*good for you*) think of the sheer human genius it took to make that tiny machine that you can take almost anywhere a readily available reality.

For more on this fascinating subject, I strongly recommend **"Longitude" by Dava Sobel**.

That's all for this time, thanks for your feedback on these emails. It is ***your input*** that drives the content of these messages as well as the content and offerings of our websites. Thanks again for your ongoing support.

David Harrington