

The Clock of the Long Now – a reflection

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Sandwiched between the past and the future we all live in the ‘now’; it is our fate. Indeed, the act of looking to the past or of contemplating the future requires a conscious displacement from the all embracing ‘now’ in which we live. A somewhat cynical interpretation of human history tells us that collectively we learn very little from past mistakes: wars are repeated and finite resources continue to be run-down and exhausted. What about predicting future? Here, once again, our record is not much better. Just like astrologers, so-called futurists make myriad predictions, some of which, mostly by pure chance, come true; I suppose that even a stopped clock is right twice a day! Is it a waste of time, therefore, to study history and contemplate the future? Most definitely not is the clear answer, but we should certainly take more notice of both the past and the future in the ‘now’ of our collective lives.

We cannot change the past, but we can change the future, and Greek mythology provides us with the story of *Tithonus* to reflect upon when we attempt to contemplate the possible world to be. *Tithonus*, the story goes, was gifted with eternal life by Zeus but underhandedly cursed by not being granted perpetual youth. At “the quiet limit of the world”¹ *Tithonus* withered and decayed; alive but entirely impotent. Here is the message for our contemplation. In our short sound-bite, 15-minutes of dubious glory, rapidly changing, down-loaded and up-linked world, we run the risk of becoming impotent and isolated, just like *Tithonus*, in a perpetual ‘now’ devoid of direction and future relevance.

Indeed, as founding Long Now Project member Stewart Brand puts it² “Civilization is revving itself into a pathologically short attention span”. He is right. If our collective thinking continues in the vein of self-serving immediate gratification then we truly have no future, because we will fail to realize that there is one. This is exactly why the Long Now Project is such a wonderful idea.

The essential aim of the Long Now Project is to forge an appreciation for the future by linking it to the past through an active involvement in the continuous and expansive ‘now’. The clock of the Long Now, the resplendent prototype of which can be seen in the Science Museum in London (figure 1), was the first physical production of the Long Now Project. It ticks once per year, but uses digital sequencing for precision. The clock is refreshingly non-electronic in construction; it requires maintenance and ‘winding’, and its parts will need to be periodically replaced by attendant keepers. The point of the clock is entirely about stewardship and accepting the responsibility of transferring something tangible from our ‘now’ to our distant descendants ‘now’.

The design of the clock was based upon five key principles: *longevity*, *maintainability*, *transparency*, *evolvability* and *scaleability*. These design concepts allow, in principle, for the clock to be kept running by almost any culture that is capable of making gear plates, cams and levers. The design also allows for the system to evolve, to be improved upon and copied - the stewards of the clock are not just mindless keepers of their heritage.

Inherent to the daily functioning of the Long Now Clock is an automatic noon-time Sun correction feature. It will not drift in its projected ten-thousand year lifetime with respect to solar time. Here, the heart-beat of ancient astronomy is preserved, the clock and our daily lives all governed and synchronized by celestial motion. Indeed, the dial face of the clock shows a rotating star field, sidereal time and the 26,000 year precession cycle of the equinoxes.

The very first ‘tick’ of the prototype Long Now Clock was struck at midnight, December 31st, 1999. It then started the third millennium with two rings of its one-thousand year chime. The mechanical clock has been with humanity since the early 14th Century³, and the resonant ‘tock’ of the pendulum-driven anchor and escapement wheel, so sadly missing from modern-day quartz-driven devices, has become the potent sound-bite for the passage of time. Equally as potent with respect to the symbolism of passing time and the stately movement of the heavens is the mechanical orrery⁴; the first such devices appearing in the early 18th century. The Long Now Project, conscious of the Platonic notion that the planets are the embodiment of a universal clock, recently revealed its own homage to the orrery (figure 2). It is a superb and humbling machine, beautifully crafted and infused with precision⁵. Made primarily of monel and stainless steel, the orrery towers 8-feet from top to bottom and while it ‘ticks’ once every 12 hours, the locations of the planets historically visible to the human eye (Mercury through to Saturn) are calculated to 28-bit accuracy. Incredible!

The Long Now Orrery and the Long Now Clock are beautiful machines and a glowing testament to human skill and ingenuity. They deserve to be looked at, thought about and contemplated in a slow, conscious, and reflective manner. What is perhaps most inspiring about these machines, however, is that they are linked to the heavens – the ultimate time keeper. Ten thousand years from now, when our world and its many troubles will have been long forgotten, our descendents will still have the familiar symbols of the sky to guide them in their contemplations. Hopefully the Long Now Clock and Orrery will also be with them - to link their distant ‘now’ with ours.

Notes and References:

1. Alfred Lord Tennyson expresses the grief of *Tithonus* in his evocative poem of the same name. See, <http://tennysonpoetry.home.att.net/tith.htm>.
2. From the essay by Stewart Brand: <http://www.longnow.org/about/>.
3. The origins of the mechanical clock are very nicely discussed in John North’s recent book *God’s Clock Maker*, Hambledon Continuum, 2004.
4. The name orrery originated from the Sun-Earth-Moon machine built by John Rowley in 1713 for Charles Boyle, 4th Earl of Cork and Orrery, Ireland.
5. The design and workings of the orrery are described in an article by Brad Lemley published in *Discovery Magazine* **26** (11), 2005. The article can also be accessed from the orrery web page: <http://www.longnow.org/projects/clock/orrery/>.

Figure 1: The Clock of the Long Now. The two outer columns contain the drive weights that power the clock, while the central column contains the binary mechanical computer (lower part) and the dial face (upper part). The dial shows the year as a five digit number, as well as the sky locations of the Sun, Moon and brighter stars. (Image from <http://www.longnow.org/shop/free-downloads/>).

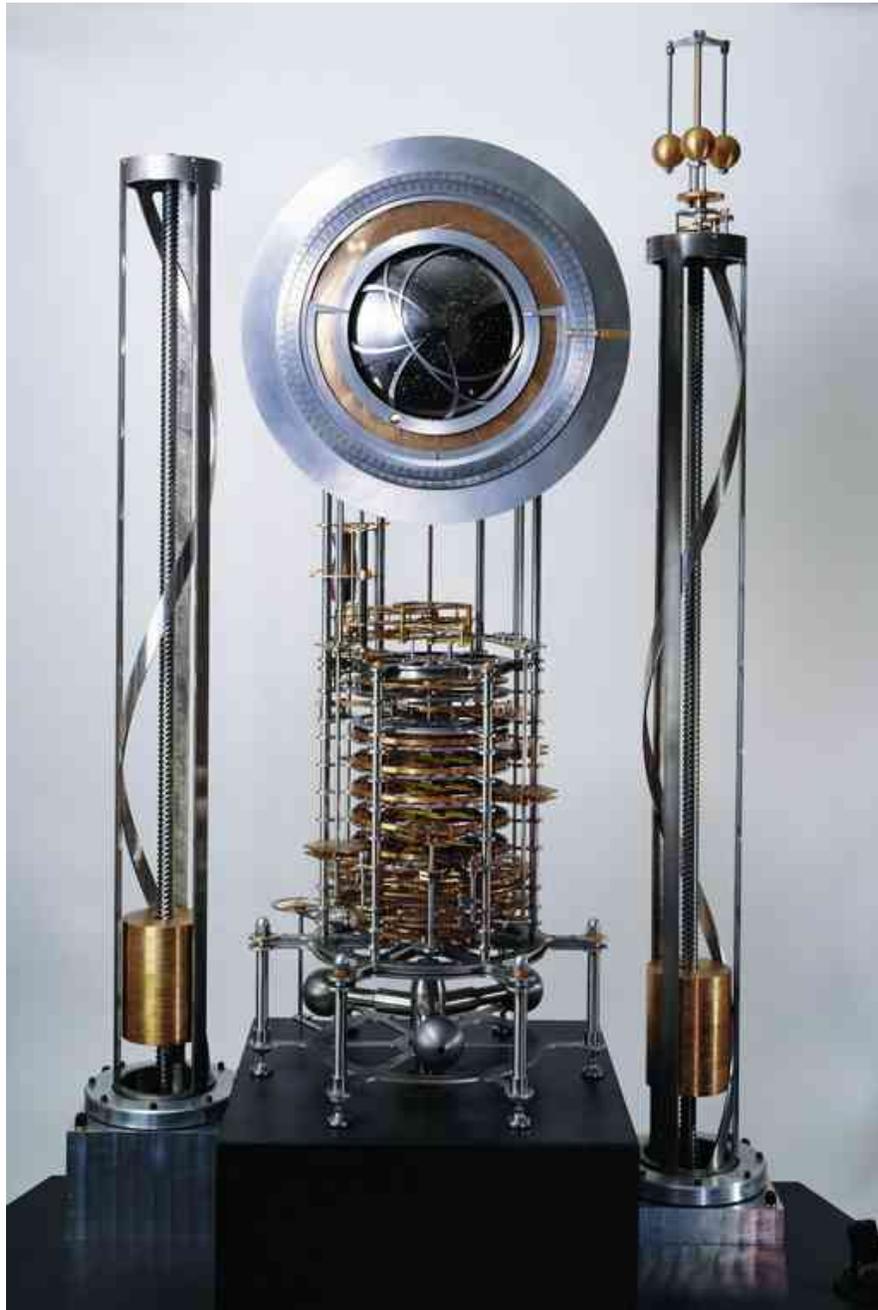


Figure 2: The Long Now Orrery. Standing some 8-feet tall, the orrery displays the relative positions of the planets Mercury through to Saturn. This image is just one of the 125 photographs taken by Jake Appelbaum of the orrery at its recent unveiling. The other images can be viewed at <http://www.longnow.org/projects/clock/orrery/>.

