

Time Bending: Reinterpreting the Craft of Clockmaking.

PhilAbernethy: phil@abernethys.com www.philabernethy.com
M: 416 574 6795 6 Islandview Dr. Nobel ON. Canada P0G1G0

Introduction

Although the Craft of mechanical clockmaking has been absent from contemporary Craft discourse it is quietly practiced on the periphery by a few die-hard enthusiasts and committed craftsmen. As a lifelong mechanical clockmaker/restorer I have always felt my Craft, with its massive pallet reaching back 700 years and an engaging philosophy, has significant potential as a contemporary creative medium. Today we no longer rely on mechanical clocks for timekeeping, that responsibility lies with physicists and the communications industries. However there's an inherent beauty in mechanical clocks waiting for creative minds to reinterpret them. I have been experimenting with this pallet for over 20 years with an aim to reinterpret and share my favourite mechanical Horological devices, which have been typically hidden behind the work of other crafts.

Clockmaking encompasses so many aspects of our curiosity. Geometry, mathematics, physics, mechanics, metallurgy, material chemistry, astronomy, and reaches into the philosophical and social sciences. All to create a machine brought to life with various crafts and aesthetic with an aim to reflect natural or astronomical events. All while functioning within nature's limits. All to measure something we have a tentative grasp of outside of social order and coordination.

Time & Philosophy

We are surrounded by natural time events, which as observers are cues to our deep connection to the natural world. Some of these cycles are immediate, some geological, all are points on an incomprehensible and complex time scale. From our limited capacity we comprehend all this with now, memory and hope. Our perceptions and experience of time has certainly changed over the course of history and yet the day is, outside of science, still a day long. In terms of our current experience of time the scenery is flying by so fast it's but a blur, mashed up into a constant stream of data we are all so hungry to consume.

In a philosophical sense Minutes are artificial constructs of commerce and Seconds are an instrument of science. Over several centuries these divisions have come to preoccupy our social and strategic consciousness. While we can easily reckon the passing of an hour with a shadow against a roughly divided semicircle we cannot deduce the minor divisions without technology. Yet, these minor divisions have become indelibly woven into our communal, private spaces and psyche. Although we cannot define them without technology we are constantly aware of them, constantly quantifying and constantly at their beck and call. This call is largely driven by commerce, social order and communal coordination.

Clocks visually and audibly modify our experience of an environment. Imagine the cadence of a quickly beating clock or one with a seconds hand and the sense of that place becomes busier. Compare that sense with a slow beating clock and the perception of the space changes. I think this is an important observation on our slice of now. Physicists agree that the distinction between past present and future is all but an illusion, if this is true then our experience of time is subjective and conditioned. We all experience time as individuals, influenced by our state of being.

This was illustrated to me recently when I saw a Broad Winged hawk flying through thick bush. The hawk's timing was so acute his feathers avoided every obstruction at incredible speed. I wondered if in fact the hawk was functioning on a different timescale, certainly it may explain the hawk's uncanny ability to make physical decisions so fast.

By nature I'm unorthodox, this would include, curiously given my profession, the dictates of time, though I'm no less subject to an almost psychotic adherence to the master. So it seems natural that I should push limitations and distill what has passed through my hands and minds eye into a reflection of mechanical time and our experience of it. It's all a bit experimental, the intended result is an appreciation of mechanics, history of the craft and the rethinking of our sense of time passing.

My work embodies many aspects of a craft absorbed and reflected. It also hopes to reflect on the nature of our experience of time, which is primarily why I often use slow beating pendulums. They are a call to reflect and experience time on a slower bus, visually and audibly via the cadence of the hypnotic pendulum. Visually the clocks are a composition of natural lines that reflect my admiration of nature.

In terms of the machines and as mechanical illustrations there are limitations to the work I do. The same limitations that applied 700 years ago at the birth of the craft. Geometry is the master and their environment is the glass house they must operate within. They are the non negotiable parameters that must be met without condition if the result is to be true. Beyond the needs of commerce and science that truth is a philosophical question that calls on our sense of experience.

Inspirations

I'm a great admirer of a seventeenth century clockmaker by the name of John Harrison. Harrison was born in 1693 and although initially a carpenter he took an interest in clockmaking after taking on the repair of his employers stable clock. What's great about his story is he didn't just repair the clock, he reinvented it. With no formal training in clock work he saw the fault and came up with an entirely novel approach that solved the issue so well that the clock still operates to this day. He went on to become England's most celebrated clockmaker, not just for his creativity, but also for his tenacity in taking head on an establishment and established way of thinking.

In his lifetime he created clocks of compound complexity. His clocks are a myriad of corrective devices piled one upon another with a single aim in mind: To keep a free swinging organic body in motion. This may seem a simple task, which it is, unless you need that body to regulate a timekeeper, then it becomes quite complex. The problem becomes exponential when that same body is put aboard a rolling ship at sea, and therein lies Harrison's legacy, that through his dedication and creativity he was able to solve seemingly insurmountable technical challenges of the day and make a sea going clock accurate enough to use for navigation. This not only saved countless lives but was also a key element getting one up on the French and Spanish in the creation of an empire.

The craft embodies countless experimentations by thousands of makers over the course of many centuries. It's a history coloured by ambitions, sacrifice, vanity, utility, political intrigues, and littered with sputtering successes and dismal failures. All driven by the needs of quantification. As with commerce, he who can quantify is King and so my craft has largely been driven by the spoils of crowning the quantifier. Beyond spoils and utility mechanical clocks symbolize a synthesis of technology, craft, art and science expressed in a fragile arrangement subject to all the vagaries of their environment. There really is no other mechanical machine that must work with nature so closely in order to reflect it. Mechanically registering divisions of our rotation is no mean feat. Everything must be balanced to a science.

My own work is free from such ambitions, however I do share Harrison's notion that doing things differently, regardless of the reaction, is an important element in discovery. The ghost of John Harrison figures large in my own work, where I have adapted his escapement geometry, gear profiles, roller pinions and double ended pendulums.

Technically the work draws on my experience as a public and domestic clock restorer. This work exposed me to countless devices and several hundred years of craft development, each a refinement upon another device or a novel invention. Early in my career I had thoughts of reinterpreting these devices in visible mechanisms as creative works. The process of realizing that ambition took many decades over which I experimented with geometry and composition.

So my work is an abstraction of my craft and of our experience of time. In a way it is the bringing of yesterday into tomorrow and a revitalizing of the concept of domestic timekeepers and their place in that space. There is something inherently sculptural in mechanical clocks. It might not seem so at first glance but each has at least some element beyond utility that belies a hint of creativity beyond the mechanics of the whole. It could be the line of a part, or most notably in early work, a signature treatment of some element in the machine, be that a 3d form or surface treatment. There's always some lingering scent of pride and the personal in past makers work. Witness of these elements is usually reserved for those ambitious enough to take the machines apart, or those with a keen enough eye to look beyond the whole machine. As with anything, the longer you look the more you see, detail upon detail, some more obvious than others. As a restorer I've been a grateful witness to countless devices that have been touched this way. It's been grist for my creative mill that aims to re-interpret the concept of clocks visually, while paying homage to my craft heritage and working within the strict parameters such delicate machines dictate.

Currently the work focuses on the reinterpretation of escapements, that is the arrangement of parts that keep a pendulum in motion. It is the heart, with a literal beat, of any mechanical clock. There are so many other components that could be interpreted, such as striking systems and automata, but it's enough of a challenge, for the moment anyway, to focus on a single function.

I have favourite escapements, the more animated variety, that I use. Though to be sure there are tens of types and hundreds of variations. Two in particular, the Grasshopper and the Gravity escapements lend themselves well to creative work. The Grasshopper is the most geometrically complex of all escapements, with its constantly changing angles of impulse and levers. I often wish I had a window into John Harrison's head (its inventor) the night he figured it out and set him along a path that would become a lifelong quest.

My other favourite escapement is the Gravity as mentioned. It is an escapement typically used in tower clocks and is the anathema of the Grasshopper. The Grasshopper has a very natural fluid motion. It really isn't a mechanical device at all. It is a natural device. Quiet, fluid, graceful. The Gravity on the other hand looks and behaves like its inventor. Abrupt. Driven. Purposeful. I used this escapement most recently in 'Insionn', but I couldn't help but to softening up the work with air braking effect feathers. I'm sure the inventor, Grimthorpe, is turning in his grave.

The reinterpretation process involves taking the original escapement geometry and reworking it into a composition that illustrates its animation. Often the geometry is pushed beyond that which is useful as a timekeeper, and so where this is the case I use a precision quartz mechanism to provide timekeeping.

Craft & Technology

I've found the discussion about how technology is changing Craft very interesting. In my craft technology has always been present, indeed many of the processes would be impossible without the aid of ancillary machines that perform functions the hand and eye cannot. This is particularly true of watch work, where scale is certainly a factor. The notion and definition of craft is certainly changing, it always has and always will, because it reflects us, and we are in constant development. In my experience the intersection of technology and craft is a very natural environment.

Craft is an attitude to work. It is a notion of doing things diligently, thoroughly and sincerely to the best of ones abilities, at whatever level of competence you happen to be. The process and tools used are a means to an end, not the definition. My own work is executed on some pretty high tech gear. I know hand tools intimately, but the process of designing, processing and finishing any part with high tech equipment takes just as much consideration and skilled execution as a well placed blow of a hammer. It takes a considerable understanding of the processes and machine limitations, the same way a blacksmith understands his fire and hammers.

My CNC equipment is essentially a glorified 19th century wheel cutting engine. I have operated both and I can tell you that a CNC machine requires considerably more skill and understanding of both process and material than a wheel engine. To my mind Craft is a process, not a romantic ideal and so I make no distinction between a file in my hand and a watchful eye on a CNC cutting process. Both achieve an ends that realize an idea. Learning to use what you have and exploring limitations is very much a powerful process of Craft and integral to its philosophy.

About Phil

I started at the restoration bench under my Father at 14, completed my apprenticeship and diploma at 24 and spent the next couple of decades restoring some very fine works and some very humble ones. The confines of the bench gave way to public clock restorations and commissions, mostly standard works, but the occasional creative work. Throughout I always had it in mind that the craft could be taken somewhere different. The palette to draw on is huge and new technologies meant that pursuing some long standing ideas could be realized more efficiently. So between standard commissions I began to explore. Most of my early work was a litany of abject failure, but I think I'm getting the hang of it. There's been lots of progress, particularly over the past 3 years, over which time the technical understanding has progressed to a point where I can now focus on the visual and materials.