

Steam engine time

By Tim Roerig

What marks the dawn of a new age? The noted meteorologist and atmospheric chemist Paul Crutzen (1933–2021) dated the start of the Anthropocene era—during which the composition of the atmosphere began to change due to human activity—to the year 1784. This was the year that James Watt, the British inventor of the steam engine, obtained his fourth and most important patent. For many, Watt’s name is synonymous with the start of the Industrial Revolution, but he was certainly not the only or even the first inventor of the steam engine. The idea was in the air, as they say. Science-fiction writers therefore speak of ‘Steam Engine Time, when several authors come up with the same idea at the same time.

The artworks in this exhibition can be seen as attempts to detect change in the air. This change happens so slowly that it defies observation, and thereby reflects the feeling of stasis that characterizes our time. History does not seem to be moving forward but instead spinning in circles. Present, past, and future appear to be collapsing into each other, as is the case in the work of Lennart Lahuis, in which different technological eras converge.

In the exhibition *With Sighs Too Deep for Words* we see how the past intrudes into the present. This exhibition connects two recent series of Lahuis’s work. *Astromelancholia* is an astronomical clock that shows the actual position and speed of the planets in our solar system. Several dials show details from the Vera C. Rubin telescope in Chile, with a 3200-megapixel digital camera, the largest of its kind in the world. When completed, this telescope will take the most detailed pictures of the universe. Its image sensors are capable of detecting even the faintest sky light and can thus look back billions of light years in time. The farthest past reveals itself, thanks to this latest technology. Here, Lahuis juxtaposes the astronomical clock with four steam machines that convert water vapor into information. The words ‘WHEN IS IT – THAT WE – FEEL CHANGE – IN THE AIR’ appear as a cloud of steam and then evaporate. They refer to changes in the atmosphere that were set in motion long ago but only gradually make themselves felt.

Lahuis originally made his steam machines for an exhibition about the impact of climate change on water supplies. In *When Is It That We Feel Change In the Air*, the words ask about current signs of global warming, while the steam itself recalls their historical causes. The advance of the steam engine and its widespread application around the globe led to unprecedented carbon dioxide emissions from coal combustion. The fact that this work was first

exhibited in a former steam engine factory at the Grand-Hornu adds another layer of meaning. For that exhibition, Lahuis printed construction drawings from the factory archives on the crates of the machines. He later erased the drawings with white epoxy paint, but their traces still remain visible. A series of foam panels on the wall also reveal traces of the artwork's history. The artist originally used these panels as protective coverings while working on his steam machines. He then decided to transform them into independent works, thus salvaging information about his working process that would otherwise be lost.

The way information is erased by time is a recurring theme in Lahuis's work. With his steam machines, the artist searches for the limits of the medium. Words appear and disappear without taking on a fixed form, as fleeting as thoughts. With this work, Lahuis takes a new step toward the dematerialization of the written word. In earlier works he wrote texts with water which he allowed to dry in the air so that they slowly became unreadable. In his latest work, the text actually becomes legible through the process of evaporation, even if only for a few seconds. 'WHEN IS IT - THAT WE - FEEL CHANGE - IN THE AIR': Once the words dissolve, the question is left hanging.

What do we actually notice about the air that surrounds us? The Earth's atmosphere contains mostly nitrogen and oxygen and varying amounts of water vapor. The proportion of carbon dioxide and other greenhouse gases is minimal. All we can observe of these without using special equipment are fluctuations in temperature, humidity, and sometimes atmospheric pressure. The air itself remains elusive. Perhaps that is why writers associate air with thought. It manifests itself only through its effects in the visible world, as it does during a storm. Moreover, the fact that radio waves travel invisibly through the ether feeds the notion that ideas can spread through the air. Lahuis seems to allude to this in the patent application for his steam machines. They are legally defined as 'an application for information transfer in water vapor.' Although it is not shown here, his patent application suggests a poetic attempt to own an idea. To whom does an idea belong? Does it originate in the spirit of the times or in the mind of the individual who conceived it?

Whatever their origins, technological discoveries often lead to fundamental insights. Even if the first steam engines were revolutionary, they were also highly inefficient. The vast majority of heat was not converted to motion but was lost in the process. In hot factory halls, workers felt the change in the air. The search for an explanation for the mystery of escaping heat led the German physicist Rudolf Clausius (1822–1888) to discover that

energy is inevitably lost when heat is converted into motion. He called this phenomenon 'entropy' and showed that the energy loss is irreversible. For the first time, it was scientifically demonstrated what people already knew from experience, namely that some changes cannot be reversed. Clausius thus proved that time moves in one direction. But if that is the case, why do we still feel that we are being overtaken by the past?

Since the beginning of the Industrial Revolution, time seems to be moving ever faster. After all, technological progress means that more actions can be performed within the same period of time. There is no time to stand still, which is why it can be tempting to escape into memories, as a kind of protest against the relentless march of time. The resulting feeling of being lost between past and present is aptly expressed in the text on one of the dials in the exhibition: 'finding those hours that have lost their clock.' This phrase is often attributed to the Chilean poet Vicente Huidobro (1843–1948), but cannot be found in his oeuvre. In effect, the words have detached themselves from their supposed author and float freely in the air. Lahuis translated them into countless tiny dots of light that he photographed with his camera. The image unmistakably evokes a starry sky, reminding us that when we look up at the sky at night, we literally stare back in time. Two other photographs in the exhibition have also been distanced from their authors. They are based on generic stock images used, for instance, in advertising and on calendars. The artist has reversed the relationship between photographic image and paper by printing the images on the backboard of a frame and covering them with a layer of wax and paper on glass. Consequently, the images are barely legible but their titles (Camera and February) suggest that their subject matter pertains to the capturing of light and time, respectively.

On two other dials, Lahuis has included details of the image sensors of the new Vera C. Rubin telescope. Energy emitted by stars in the form of light particles is converted by these sensors into electrons and translated into a digital image consisting of 3.2 billion pixels. Lahuis has set the still images in motion by mounting them on an astronomical clock. His timepiece allows us to read solar time, sidereal time (star time), the lunar cycle, and solar and lunar eclipses. It is accompanied by a comprehensive manual prepared by the graphic design studio Our Polite Society. The visible mechanism of the timepiece is ingenious in its poetic simplicity. In the context of this exhibition, it seems to express a nostalgia for slowness. The circles of the dial rotate so slowly that their movement is barely perceptible. The only reminder of the passage of time is the contrast between the anachronistic technique of the timepiece and the advanced technology of the telescope.

An even greater slowness characterizes the composition Organ²/ASLSP (As Slow as Possible) by John Cage, the score of which is depicted on one of Lahuis's dials. This composition is being performed at St. Burchardi Church in Halberstadt, Germany, as the slowest and longest-lasting organ piece in the world, with a total length of 639 years. The current tone has been sounding since February 5, 2022; the next change of tone will occur in February 2024. Cage's composition has its own tempo, one that does not take into account the human perception of time. The same applies to the timepiece in this exhibition. Lahuis calls this work of art 'time-specific,' by which he means that the viewer will see a different part of the work at each moment. But ultimately, just like the steam machines, the clock will return to its original state. In the case of the machines this takes only a few seconds; in the case of Lahuis's clock it will take 18.6 years. When the image on the dial is seen again in its initial position, the air on Earth will be on average 1.5 degrees warmer than before the dawn of the Industrial Age.

If this thought might lead us to despair, the Bible asks us to keep the faith. The title of the exhibition With Sighs Too Deep for Words is taken from Saint Paul's Letter to the Romans (8:26). When we don't know what to say to God in prayer, Paul writes, the Spirit pleads for us with wordless sighs. As its breath fills the air, it is slowly getting warmer. Meanwhile, the oldest light in the universe is still on its way to planet Earth. As time moves forward, we will be able to witness the birth of the universe and feel the effects of industrial history in the atmosphere. It is as if we are simultaneously heading toward the beginning and the end.

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