Zoï Kapoula · Marine Vernet *Editors*

Aesthetics and Neuroscience

Scientific and Artistic Perspectives

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Time: Active or Passive

Olga Kisseleva and Claire Leroux

Abstract Science created the concept of time which is connected with space and supported by a congruence of natural and perceived phenomena. Epistemology has transformed it into duration and given it a direction. Experimentation, perception and intuition make it relative, even evanescent. Only art can act on it to give it responsibilities or to turn over it, which is what Olga Kisseleva does in her works of art.

Four Different Times

Time is not the same everywhere, in other words it's not a fixed magnitude, but a relative one: it doesn't unfurl at the same speed everywhere in space. Close to an important mass, time flows more slowly; far from any mass, time passes quickly. Thus, for an observer on the surface of the Earth, a yardstick sent close to the center of the Earth, if measured through the distance traveled by light during a time t, would appeared shorter than the same yardstick measured on the surface of the Earth, or than the same yardstick if both the yardstick and the observer would be close to the center of the Earth. Similarly, the acceleration, and consequently the trajectory, of a satellite is influenced by the mass of other celestial bodies, a phenomenon that can be also described by considering that celestial bodies disturb the

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space-time continuum: when we fall, we fall along the curve of space-time. In other words, movement provokes the slowing down of time, or time dilation. We can say, therefore, that space and time are relative, and that we cannot see it and experience it because our speeds are too weak.

In addition to this objective time, a *physical time* with physical qualities, there's a *biological,* a *psychological time*, and maybe a *social time*. For each one of these notions, there's the possibility of having an objective measure of time, of the past, the present, far away time, nearby time, that are not all the same.

Time therefore possesses a scientific definition that one can apply thanks to scientific formulas. This first approach creates a distance between this notion and ourselves. Yet, time is something we actually live in, that we experience. Thanks to biological science we know that our body has its own clock, which dictates a way of life, communicated by signals such as fatigue, agitation, etc. This hypothesis, that the organism has a biological clock, was already present in the 19th Century.

The so-called "circadian" biological clock (i.e., a daily rhythm) would be defined as an internal structure capable of indicating to our organism what it must do, and how it must react. Which means that each one can synchronize his/her activities in tune to alternating day and night. Our organism is "programmed" to wake up when it's daytime and feel sleepy when it's nighttime. This biological clock allows us to properly adapt to the environment in which we live. According to biologists, such biological rhythms are punctuated with specific molecular structures, which act like clocks. We all have a sort of internal clock, which we call our "biological clock". This seems to govern certain phases of our metabolism, giving a rhythm to our days, so that our physiology is "affected" or controlled by this biological clock, as the brain also responds to this rhythm.

As such our organism has its own notion of time, influenced by an "internal rhythm", a sort of psychological time.

But we should also look at another visible measure of time on our body: aging. Our body has a biological clock that establishes a daily, cyclical rhythm that can bring the notion of time closer to something continually re-starting. Nevertheless it is obvious that our body is also submitted to the effects of continued and finite time. The aging of cells, and therefore of our body, is the most visible aspect, which reminds us of our finiteness.

Thus, man can distinguish two sorts of time: one continuous, which reminds us of our finiteness through the aging process with time passing, which is close to physical time, Einstein's theory of relativity and the presence of a "time arrow". And a second time, that's cyclical, which is felt in the renewal of days, of seasons, supported by our biological rhythm that's regulated to a 24 h cycle that seems to restart indefinitely.

It also appears that we have a perception of time that's different from our body's and for the one shown which shows on our watches.

Psychic time is that of "lived" duration. Our perception of time changes with events, and the feelings experienced. For example, one might think that the more important moments of our lives lasted longer. That time fluctuates. Our senses do not read the environment continuously, but intermittently in order to avoid a saturation of information; this selective sweeping is also linked to our feeling of time. This frequency of information absorption seems to vary with age; the perception of time seems to be perceived longer for children than for adults: children live more events per unity of given time, which is perhaps why the same interval of time seems longer for a child than for an adult. This explains why we say the older we get the more time seems to speed up.

We might ask, therefore, if it's possible to modify our perception of time. This phenomenon can happen sometimes, for example with martial arts: fighters optimize their reactions in front of very quick moves, and as such modify their perception of time. Therefore, we have the capacity to accelerate or slow down psychic time, as our brain assesses time as something that we experience thanks to our senses.

St Augustin spoke of the "present of the past, the present of the present, and the present of the future"; this is close to Husserl's thesis when he claims that in each present instant there is a part of the past (memory) and a part of the future (anticipation), which allows us to live "within time".

Once we've defined this notion of time according to several physical, biological and psychological points of view, we can say that we perceive it, through these three domains, in a very complex way. Physics explains why we use so many spacial expressions when talking about time. Biology teaches us that our body possesses its own clock and that a lot of our acts are suggested by this mechanism. That means that time is experienced differently by our psychism. The human body has several instruments with which to measure time. But we can distinguish two main ones, the time that we live as established by calendars and clocks which provide us with hours, minutes and seconds, and the time that our mind and our body experience. Grouping the biological rhythm of the body as well as our feeling of the fluctuations of time experienced, one being more objective and imposed, the other "intimate" subjective and individual. It is close to the domains of cognition and philosophy in terms of its belonging to that of thought, reflexion, inscribed in our conscience and our memory.

Olga Kisseleva's installation "It's Time" is the expression of our capacity to act and modify the duration and perceptions of those three intermixed times.

It's Time

Olga Kisseleva & Sylvain Reynal *It's Time*, interactive bio-art installation, exhibition *Time in Action,* Louvre Lens, France, 2013

It's Time,[1] created in collaboration with Sylvain Reynal, a quantum physics researcher, consists in a large digital clock that responds to the emotional state of the visitors. It displays soothing messages and slowed down time when the visitors to the exhibition are in a peaceful mood. Conversely, a stressed visitor causes the clock to accelerate time and send messages instructing him or her to hurry up. *It's Time* addresses one of the crucial issues of our post-modern society: the acceleration of time. This change in perception of time occurs at a collective level and significantly increases the individual's level of stress and personal frustration. Our research concerns various issues related to the perception of time today, the consequence of this perception on the individual conscience and the limits of individual thought's influence on changing the collective consciousness.

[1] 1st Ural Industrial Biennial of contemporary art, *Shockworkers of the Mobile Image*, NCCA, Ekaterinburg, Russia, 2010;
Olga Kisseleva, *Brave New World*, Contemporary Art Centre Rurart, Poitiers, France, 2010;
Time in Action, Louvre Lens, France, 2012–2013;
Olga Kisseleva, *Contre Temps*, Rabouan-Moussion gallery, Paris, France, 2014
Olga Kisseleva, *Sensitive Worlds*, CDA, Enghien, France, 2014.

It's Time was created for and in conjunction with the Contemporary Art Biennale of Ekaterinbourg, in the Ural region of Russia. The city is well known for its industrial past. The Uralmash factory, famous for building the T34 soviet tanks and later on the intercontinental missiles, is located there. Most of the town's citizens work at the factory. While Ekaterinbourg is slowly moving towards a more diversified economy, it still shows the traces of its industrial past.

The installation *It's Time* was purposely located at the main entrance to the Uralmash factory. During the Soviet regime and especially in time of war, discipline there was merciless. Life at the factory was implacably ruled by the sound of the siren activated by the main clock. A workman who was late could be severely punished, by being deprived of his meal for instance. So the daily rhythm at the factory was regimented by this clock, feared as a "dictator of time" by the employees. The installation addresses this particular situation, and, more widely, speaks about our perception of time and our relationship with the passage of time in our contemporary society. However, in this work, the artiste have given to the workmen ability and power to regulate the clock according to their own biological rhythm, thereby reversing the existing situation, where it is no longer the mechanical historic clock that dictates time.

Catherine the Great founded Ekaterinburg (as the name suggests) as a window on Asia. Peter the Great thought that Europe was the natural partner for Russia and that exchange with Europe should be increased, whereas Catherine the Great felt that it should be Asia. The town is in the Ural Mountains where there were large deposits of iron and other rare and precious metals. Russian industry was born there: all the metallurgy, the machine and equipment manufacture is based in the Ural Mountains around Ekaterinburg, which is why it's called the "factory-town". Whereas Peter the Great constructed a fortress, palaces, castles and trading areas in his town, Catherine built factories and mines around which there were workers' living quarters. This is how the town developed, and then the Soviets arrived and continued to construct armament factories, during the 20s and the 30s in preparation for the future war. There were, of course, factories in the european part of the country (in Moscow and Saint Petersburg), but when the war began they all moved to Ekaterinburg. All the weapons, the famous T-34 tanks and the missiles called "Stalin's organs" were made there, in Russia's biggest military factory.

There had never been any art center in this city, nor cultural events. Against all odds, in the 2000s, the municipality decided to create a Contemporary Art Biennial in the factories. There are 500 factories in the city, and each artist was invited to work with and in an entire factory. One could use the material and work with the

people working in the factory. The exhibition visitors went from one space to the next by bus. Olga Kisseleva was one of the first artists invited and so she could get to choose the enormous military armament factory where the tanks and missiles are constructed, and which is almost a legend in Russia.

Above the factory, there was a clock which is very famous because it's hooked up to an alarm which would wake up the entire city in the morning, as in the 30s the workers didn't have watches. The 5 am siren woke up the whole town, and then at 5.30 am it rang non-stop for a quarter of an hour, and at 5.45 am all workers had to be at the factory. They ran to get in while the siren was still ringing. If a worker arrived after it stopped, he wasn't allowed his meal; he still had to go and work, but wasn't allowed to eat at lunchtime. The third or fourth time you were late, you were directly sent to the Gulag. In the 1930s, during Stalin's time, people weren't paid, they had to work in exchange for lodging and food. The same siren would ring when it was time to stop or start work again, for the children to go to school, for the relief team of workers that turned up at midday, in fact the whole town's life would be punctuated by this clock.

When Olga Kisseleva arrived there, she was shown the clock, and learnt of its history. She also was shown how the town was built a bit like Versailles: at the entrance of the factory, there were three axes so that everyone could get there efficiently, without crowding. When she realized that this was the link between her own personal questions about time, and relationship to her alarm clock, she decided to use this famous clock for *It's Time*.

Right where the workers came into the factory we placed several biological sensors which gaged their emotional state and which made the clock go forward according to their emotional state, in order to overcome this time dictatorship. The time could go slower or quicker than the time given by the clock. The idea was to upturn the so-called objective time which in fact depended on Moscow, i.e., the time of the State, of Stalin, the time according to the military industry that was imposed on the population of an entire city.

Olga Kisseleva wanted to overturn the device so that people could dictate their own personal time to this clock. Then, she made a portable, museum version for the Louvre. The first version stayed where it was in Russia. The Louvre's version which was the only one 21st century piece presented in the Louvre Lens inaugural exhibition *Time in Action*, is precious wooden sculpture composed with two parts: clock and interactive borne connected by bluetooth. Despite it's smaller dimensions the interactive sculpture include the same technology elaborated with the Uralmash scientific team.

Olga Kisseleva & Sylvain Reynal *It's Time*, interactive bio-art installation, 2011, the National Centre of Contemporary Art collection, Ekateribourg, Russia

To build this complex art-work Olga Kisseleva worked on creating the system in collaboration with a cardiologist.[2] So from the technical point of view, we put very high precision tools that are used today in tanks. When a soldier sits in the seat of a missile hunter, which goes extremely fast, then before anything happens there's a machine which controls his physical state. It's all compared, of course, with standard data, but then the report is measured notably in relation to his normal heart rate. This is the technique the artist used. Everyone has a specific, ideal heart rate for her/his body. Then other tools are employed to measure the heart rate of a precise instant in relationship to his/her normal heart rate. This comparison allows one to ascertain whether the person is in a relaxed, calm state, or rather in a stressed, accelerated state.

One can't really talk about this piece, in terms of "objective" time, because time is subjective. It's a matter of democracy. Democracy as we know it today is not nuanced enough for the artist. Voting is "for" or "against", an election is always a choice between "this one" or "that one", while with *It's time*, there's a choice that's not voluntary, a subtle choice. If a visitor makes the clock go twice as fast, it's going to influence the course of time further than someone slowing it down by just 2 %. At the end of the day, when objective time, Moscow time, says It's 7 pm, the

[2]Arina Krasnikova.

It's Time clock might say it's 9 or 3 pm. This time is more democratic because it's been chosen by all the workers together. It's a sort of collective intelligence.

This time, which is collectively felt and directed, is a kind of social time, a time decided by a group of people doing a specific activity in a specific place. But it's also an economical time. This installation is a fair illustration of the proverb "Time is money" but it's much better directly expressed in another of Olga Kisseleva's installations: *Time Value* in which we can experience the same virtuality interdependence/interplay between money and time.

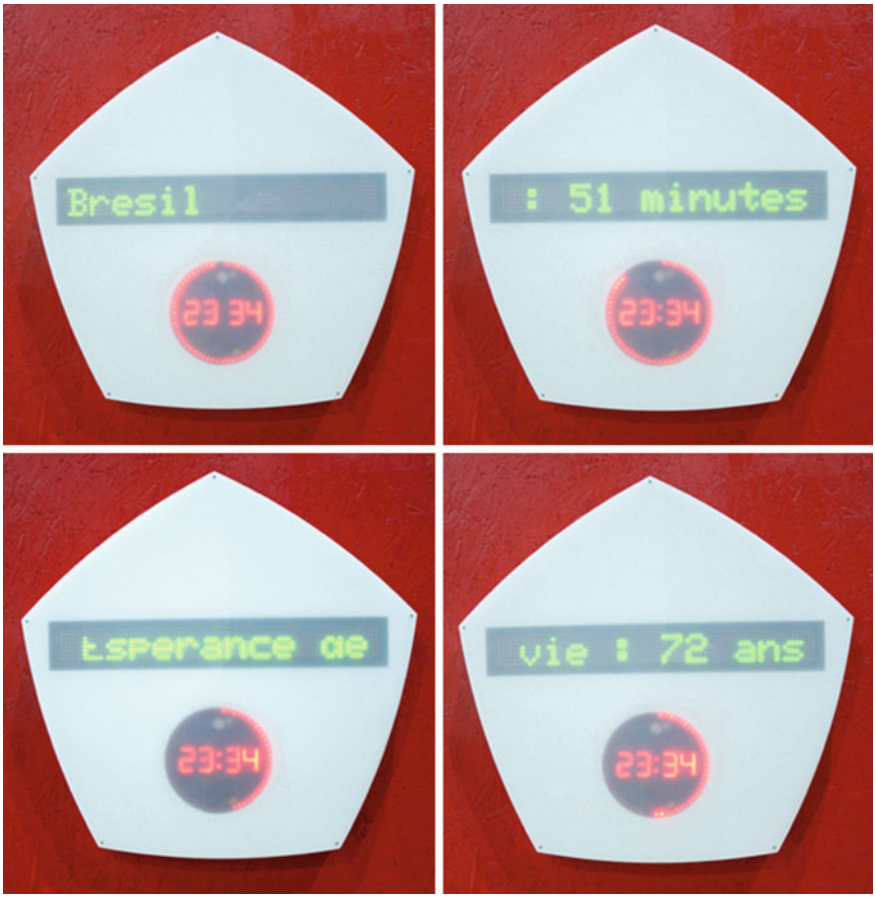
Time Value

Olga Kisseleva *Time Value*, interactive installation, 2012

With *Time Value* the artist gives a perspective on current developments and cost saving in industrial business.

Ten interactive electronic clocks are connected in real time on the n-value servers from different countries of the world. The time shown by each of the clocks flows at a rate proportional to the time worked by a person for one euro. The clock also displays the real-time data used to calculate the value of time: the duration of life, number of hours worked in the year, security index…

The installation *Time Value*[3] takes the concept of *n*-value as it's starting point. *N*-value is a system set up by the development department of multinational groups. This system allows them to optimize the location of their production units. The system is based on the ratio between the cost of hand works and raw materials on the one hand and transport costs and risks on the other hand. Time value and life expectancy are linked. It's simulated from the standard value of the hourly cost of work. The more the value is low, the more the life expectancy is short, and conversely.



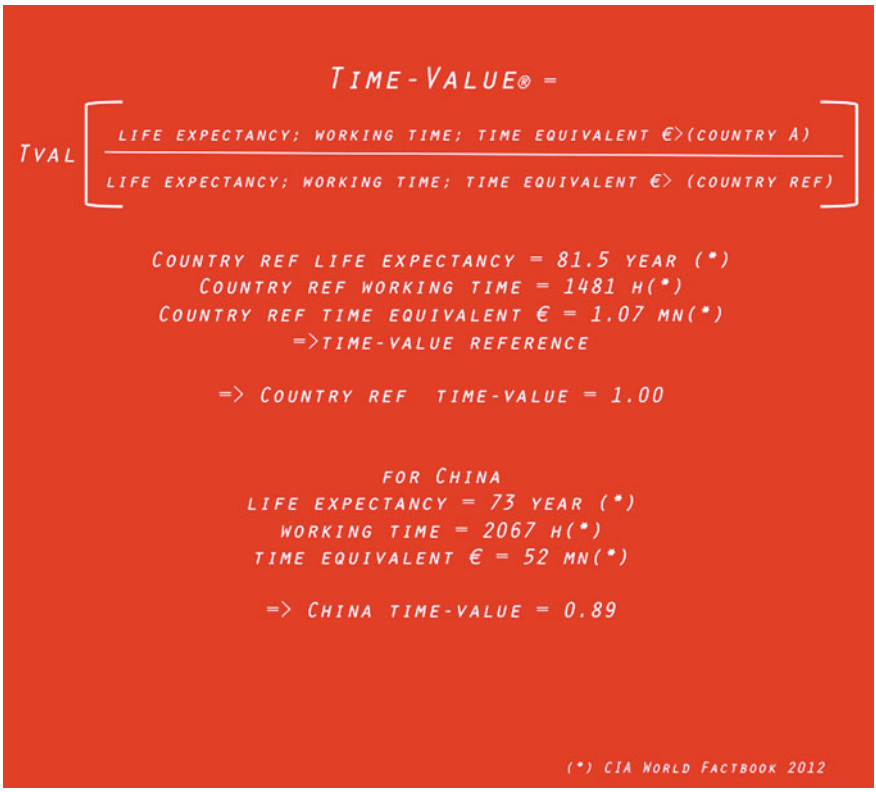
Olga Kisseleva *Time Value*, interactive installation, 2012

[3]Olga Kisseleva, Crossing Flow, Château des Adhermar, Centre d'art contemporain, Montelimar, France, 2012

Art and Economy, collaboration with CCIMP, Palais de la Bourse, Marseille, France, 2012; Olga Kisseleva, Contre Temps, Rabouan-Moussion gallery, Paris, France, 2014

Olga Kisseleva, *Sensitive Worlds*, CDA, Enghien, France, 2014.

Time Value derives from *It's Time* in the frame of the phenomenon of geo-localization. Depending on our geographical localization, we don't live at the same rhythm: time doesn't go at the same speed in the suburbs of Nairobi, in the Kilimanjaro crater, or in Hong Kong. We imagine that the time in the Sahara remains eternal compared to a megacity hurtling along at an incredible speed, but there's something else that we don't think about that much, i.e., that "Time Value" is an official value used in businesses. It's thanks to the determination of the value for each localization that businesses choose where they're going to be and, in the end, their de-localization. In France, for example, the "time value" is high, time goes quicker, time is expensive, placement is expensive, the hourly rate of human work is expensive, so businesses leave. In other countries, such as Rumania for example, the "time value" is a lot less, so businesses rush to set themselves up in the country, and all of a sudden life is activated. The "time value" is an interesting function as it includes the hourly cost, but also the value of an individual life. The lower the "time value", the less interesting that would be. It's proportional. In Botswana, life expectancy is forty years, time flows more slowly and life is shorter.



Olga Kisseleva *Time Value*, graphic piece, 2012

In a way, from a temporal point of view, the overall value is the same, since a shorter life corresponds to a slower time, whereas a longer life corresponds to an accelerated time. If you live slowly for a shorter time, then you've had a temporal experience that's comparable to that of someone who's lived longer but more rapidly. It seems very logical, but at the same time, remains ruthless. But it's possible to feel another experience of time by bringing at home one of the clock and deciding to live according to Botswanan or Indonesian time even if it's a metaphor.

Tweet Time

Olga Kisseleva *Tweet Time*, interactive net-art installation, 2014

Tweet Time is another experience of the social time. It's based on the Twitter social network. The idea of Olga Kisseleva is to offer everyone the time he wants, deserves, or that corresponds to that person. There are other questions too: how can one adjust the different temporalities? How can they meet and cohabit? Another point of reference must be found between these individual times so that one can come together in a common time that is less of a dictator than today's objective time.

The artwork uses the social network Twitter as its source element of interactivity. Each time a tweet containing the idea "I don't have time" is emitted, the *Tweet Time* clock slows down, creating a progressive shift in relation to universal time.

With *Tweet Time*, which was produced in collaboration with engineers at the ARNUM laboratory (ESIEA), Olga Kisseleva continues to reflect on the notion of time. The installation takes two different forms: a first simulator that's runs directly on the web and a physical clock (actually at the level of the prototype). In a world in which everything is accelerating, taking time out to reconsider one's daily habits, reclaim one's own choice of rhythm, and be aware of our limits, seems ever more vital. The artwork uses the social network Twitter as its source element of interactivity. Each time a tweet containing the idea "I don't have time" is emitted, the *Tweet Time* clock slows down, creating a progressive shift in relation to universal time.

The aim of this piece is to create a timeless interstice corresponding to the requirement of strangers who find the time on the Web to show the planet that they don't have enough (time). All these wasted seconds used creating tweets are therefore offered up to those looking at the piece. When they first confront it, the artwork will present them with a new time as defined by the clock which will mathematically provide them with more time in the museum space. The apparently negligible lapse of just a few seconds will lengthen according to the interactions with Twitter over a fictitious period during which the time, and then the date, will no longer be acceptable. The critical dimension of the piece is to be found in the way it presents a fictitious space-time obtained through the recycling of tweeting time.

Art and Science Collaboration

If we used to say that art and philosophy asks questions and science brings answers, relationships between art and science aren't so dichotomous. It's just like those times described above, an only one notion for many conceptions, in the same time objective, directed by physic and biology, but easily questioned, even returned with philosophic and artistic proposals. Both conceptions are finally linked by a spiritual dimension difficult to explain and even more difficult to share, leading often, to it being ignored for fear of appearing obscure, cutting the information flow and, potentially hindering the success of the project.

This understanding of the spiritual dimension is vital to the production of common ideas which can transform a simple construction project into a true collaborative process. And it is exactly this which is at the heart of a successful and on-going collaboration between art and science. Such a project should bring a great deal to both camps as illustrated in the Olga's Kisseleva's works of art.

Olga Kisseleva et Claire Leroux « Time: Active or Passive », dans *Aesthetics and Neuroscience*, sous la direction de Zoï Kapoula et Marine Vernet, 2016, éditions Springer, Cham, Suisse (en anglais).

resumé

Le temps est une notion complexe qui a toujours attisé les curiosités et défié les esprits les plus avisés, qu'ils soient scientifiques, philosophes, historiens ou artistes. Ainsi, Olga Kisseleva en a fait le cœur de son travail artistique et dénonce son dictat sur les hommes dans plusieurs installations d'art-science.

En premier lieu, la notion de temps, qui est complexe, nécessite une contextualisation car il ne cesse d'échapper à sa propre compréhension, comme le constatait simplement Saint-Augustin : « Quand on ne me le demande pas, je sais ce qu'est le temps ; quand on me le demande, je ne le sais plus. » [1] Ce concept, que le langage peine à définir, a été fabriqué par l'homme pour son besoin mais avant tout pour répondre au constat d'une double réalité, pas toujours convergente : celle des mouvements des astres et de l'univers et celle de notre intuition et de notre perception. Car force est de constater avec Alban Gonord qu'« il y a quelque chose en nous, de nous, au-dedans, comme au dehors, quelque chose qui passe, et dont le passage s'effectue malgré notre volonté. » [2] ; le paradoxe d'un présent insaisissable que l'on tente de définir alors même qu'il ne cesse de disparaître [3].

LE TEMPS PRÉSENT

La physique et les mathématiques contournent la question, soit en l'ignorant – Pascal ne voyant pas l'utilité de définir le temps qui fait partie des « mots primitifs » éclairés par leur propre lumière [4] – soit en définissant le labs de temps, un espace qui vient circonscrire une durée. Depuis Galilée, qui l'a initié, puis Newton [5] qui l'a formulé, le temps est défini scientifiquement comme étant en lien étroit avec l'espace, les deux interagissant. L'intuition qui se traduit dans l'expression « l'espace d'un instant » ou dans le terme de « simultanéité » [6] se trouve alors théorisée. La spatialité semble donc intimement liée au temps. C'est ce qui a conduit à parler de « flèche du temps » [7], qui s'écoule de manière inexorable dans une direction unique. Le temps existe puisque l'espace existe et inversement. D'où l'introduction du mouvement et de son unité de mesure, la vitesse.

L'idée du temps se matérialise surtout dans notre capacité à le mesurer. La chimère des sciences agit alors : plus on avance dans la précision de son unité de mesure, plus l'exactitude de l'étalon le rend réel – et peu nous chaut que le physicien qui l'a inventé ne sache le définir. Il a fabriqué un temps universel qui est associé à l'obsolescence annoncée de tout ce qui nous entoure[1]. C'est une unité pour nous positionner et agir en fonction d'un écoulement standard, qui a été déterminé par des années de recherche pour mettre en place des systèmes de mesures – année, mois, jour, heure, minute, seconde – basés sur le mouvement des planètes, puis récemment sur le rayonnement des atomes de césium[2]. Mais par-delà les multiples éphémérides et horloges, la question persiste : ce temps existe-t-il vraiment ou n'est-il qu'une projection de l'esprit, une idée qui a besoin de rattachements matériels pour se réaliser et s'actualiser ?

LA VALEUR SUBJECTIVE DU TEMPS

Force est de constater que la perception que nous avons du temps, même subjective, est réelle. Chacun a fait l'expérience d'un temps qui ne se déroulait pas toujours et partout à la même vitesse. Le temps est senti, ressenti ; un mot pour le désigner ; une unité pour s'accorder ; une rigueur scientifique pour se rassurer. Il trouve sa réalité dans la chronobiologie, mais surtout dans la perception individuelle, dans la place et le rôle que chacun lui accorde car on a tellement pensé avec le temps qu'on ne peut plus penser sans lui.

Si le temps se mesure, il est aussi perçu, et les deux moyens divergent souvent. Ce « temps psychique » implique la possibilité de mesurer des durées différentes en fonction de ce que l'on vit. L'expérience de nos sens se traduit en impressions d'une fluctuation du temps, qui s'étire ou se raccourcit au gré de l'intensité de l'activité. Elle se heurte au découpage impersonnel mais bien plus pragmatique du temps de tous.

Alors que le temps ne servait encore récemment que de repère pour rythmer et délimiter la journée de travail, nos sociétés et nos vies se sont entièrement tournées et basées sur lui. Il est un repère pour nous, autour duquel s'articulent nos vies. Mais un repère dont l'importance croît au fil de l'Histoire, en fonction de l'évolution de notre perception du temps dans nos sociétés, nous mettant face à un paradoxe : nous vivons plus longtemps, mais l'impression de manquer de temps est récurrente, avec un quotidien marqué par le stress, l'immédiateté et l'urgence, une prépondérance de plus en plus grande de la vitesse [8]. C'est ainsi que de repère, le temps est devenu une valeur, commercialisable, qui s'impose aux hommes et leur dicte leur comportement[3] : ne dit-on pas communément que « le temps, c'est de l'argent » ?

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1 On pourrait étudier ce constat à la manière de John Austin (Quand dire, c'est faire) et en déduire une forme performative dans l'acte de l'astrophysicien et du physicien de mesurer une chose qui la fait conséquemment exister en tant que telle.

2 Ce qui a eu pour conséquence surprenante de modifier la vitesse de la lumière

3 La question qu'Etienne de la Boétie posait pour dénoncer les dictatures dans son Discours de la servitude volontaire en 1547 s'applique toujours à tout type de dictature : « tant d'hommes, tant de bourgs, tant de villes, tant de nations endurent quelquefois un tyran seul, qui n'a de puissance que celle qu'ils lui donnent ? »

L'artiste russe Olga Kisseleva dénonce cet état de fait en rendant tangible un état de cette valeur, appelée par les entreprises « Time value » - le coût de l'heure de travail - dans son œuvre éponyme. Sur deux horloges se confrontent les espérances de vie et le coût du travail de pays distincts. Comme le temps a plus de valeur en France qu'en Inde, il doit s'écouler plus vite si on applique le double constat de la valeur marchande du temps de travail et l'intensité de l'activité qui en découle. C'est ainsi que l'artiste associe la montée de la *Time value* à une accélération du temps ; en effet, plus le coût de la vie est élevé, plus la longévité de la population est grande. Ce raccourci s'inscrit exactement dans la pensée de Bergson sur la conscience intérieure des intervalles de temps :

> « La conscience nous avertirait-elle bien vite d'une diminution de la journée, si, entre le lever et le coucher du soleil, nous avions moins duré. Elle ne mesurerait pas cette diminution, sans doute, et même elle ne l'apercevrait peut-être pas tout de suite sous l'aspect d'un changement de quantité ; mais elle constaterait, sous une forme ou sous une autre, une baisse dans l'enrichissement ordinaire de l'être une modification dans le progrès qu'il a coutume de réaliser entre le lever du soleil et son coucher. » [9]

La vitesse de défilement du temps proposée dans « Time Value » va donc fluctuant au gré des échanges commerciaux des différents pays et des délocalisations. Le temps gouverne le monde. C'est la raison pour laquelle il ne peut plus ne pas exister.

Une horloge vivante

Ainsi le temps ne peut être réellement défini sans prendre en compte toutes les différentes manières de l'apprécier, de le quantifier et de le vivre. Notion abstraite, il est manifeste qu'il fluctue en fonction du mouvement dans l'espace, mais aussi selon les individus, leur perception des choses et des évènements. Le temps nous échappe, nous impose des limites, dont la plus importante et inéluctable : la mort. Cet évènement que nous repoussons chaque jour accuse néanmoins nos vies par cette impression de finitude, de temps qui passe, de temps perdu, des jours que nous rappelle le soleil, ou plus généralement la lumière, et qui joue un rôle important dans un phénomène inhérent à l'homme, notre horloge biologique. Si elle nous rappelle notre condition, elle nous permet aussi d'adapter et de synchroniser nos activités avec l'alternance des jours et des nuits.

La seule issue reste de créer la possibilité d'agir sur le temps. Et comme nous sommes de l'ordre de la perception – la « conscience intime » dont parlait Bergson puis Husserl [10] – c'est sur le biologique qu'il faut s'appuyer. Olga Kisseleva a toujours voulu négocier avec son temps propre, le retarder, repousser les échéances sans succès jusqu'à ce qu'elle ait mis au point l'œuvre centrale de notre propos: *Horloge biologique*[4].

L'installation est en trois parties : l'heure au format digital s'affiche en rouge au mur et surplombe un second écran LCD identique ; une borne équipée d'un capteur figurant une main leur fait face, à hauteur de bras. L'interaction est intuitive ; on pose tout de suite sa main dessus. Au moment de la retirer, une phrase défile sur le second écran – dictée par l'analyse du rythme cardiaque. Différente suivant les personnes et leur état du moment, elle est toujours impérative. Le processus intrigue, les visiteurs se succèdent poliment et assistent à la réponse de l'horloge aux autres personnes, qui rend ainsi public un état intérieur intime. Le regard critique sur l'autre s'instaure et les proches y vont de leur commentaire. Le fait de multiplier les diagnostiques permet de bien percevoir la subtilité et la totalité du processus.

Créée dans sa première version russe à l'occasion de la 1ère Biennale industrielle d'art contemporain d'Ekaterinbourg pour la gigantesque usine métallurgique où étaient fabriqués les orgues de Staline, l'œuvre dénonçait très concrètement le dictat du temps : si trois fois seulement, les ouvriers entraient dans l'usine après la fin de la sirène, ils étaient envoyés au Goulag. La version française commandée pour le Louvre Lens dénonce un impact culturel différent du temps en France – moins direct et plus sournois. Mais le vocabulaire qui lui est relatif est aussi riche : sur la centaine d'expressions répertoriées, l'artiste en a sélectionné soixante. Lorsque le visiteur pose sa main, le capteur mesure sa fréquence cardiaque. Puis un algorithme quantique (qui accélère la vitesse de calcul) la compare à la fréquence moyenne et lui assigne une expression parmi celles sélectionnées dans la base de données. Qu'il s'agisse de « Réveille-toi, sois cool, bouge-toi, souviens-toi, vite, plus vite, cours, prends ton temps, ne t'arrête pas, profite… » toutes ces expressions tutoient la personne et lui dictent un comportement à adopter. Il semble donc y avoir toujours dictat. La surprise et le retournement se situent dans le défilement des chiffres des secondes qui s'accélère ou ralentit selon l'expression affichée. Le visiteur est alors en droit de s'interroger sur la destination de l'ordre : ce n'est pas à lui qu'il s'adresse mais bien au temps. Enfin, le rythme de son corps influe sur le défilement du temps.

Une œuvre d'art-science

L'Horloge biologique a été véritablement conçue à trois, avec le physicien Sylvain Reynal et la cardiologue Arina Krasnikova, les décisions étant toujours prises en commun. Elle traite la question de la durée – qualitative – de cet espace présent mouvant que chacun de nous ressent, figuré ici par la fréquence du rythme cardiaque. A nouveau, la pensée de Bergson résonne en écho :

« Mais cette durée, que la science élimine, qu'il est difficile de concevoir et d'exprimer, on la sent et on la vit. Si nous cherchions ce qu'elle est ? Comment apparaîtrait-elle à une conscience qui ne voudrait que la voir sans la mesurer, qui la saisirait alors sans l'arrêter, qui se prendrait enfin elle-même pour objet, et qui, spectatrice et actrice, spontanée et réfléchie, rapprocherait jusqu'à les faire coïncider ensemble l'attention qui se fixe et le temps qui fuit [5]? »

L'immédiat sensible et sa mesure, l'intuition et la méthode, la conscience et la science sont ici à nouveau réunis dans cette œuvre d'art science.

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4 Version française exposée jusqu'au 20 octobre 2013 dans l'exposition « Le temps à l'œuvre – réflexion sur la perception du temps » au Louvre Lens.

5 Henri Bergson La pensée et le mouvant, PUF Quadrige, Paris, 2008, p. 4.