"I will make machines that fly under water": Electro-kinetic art/design in Latvia in 1970-80

Margareta Tillberg

"Nineteenth century art exhibitions were attended by the same curious and interested members of the public who now go to automobile shows. But surely they cannot, in the long run, find what they are looking for?"


"Shit! Muck! Crap!" («дерьмо», «говно», «мазня») exclaimed party leader Khrushchev at the epoch-making art exhibition in the Moscow Manege, a stone’s throw from the Grave of the Unknown Soldier, next to the Kremlin. It was 1962: "Artists eat the people’s bread [...] but who do they work for if the people don’t understand them? [...] Prohibit it!"

Art, Science and Technology (AST), kinetic art, light and colour in motor-driven art work has been a rich experimental field from the 1960s onwards – in New York with Billy Klüver, in Buenos Aires with Julio Le Parc, in Zagreb with Srnec and the New Tendencies, and in Boston with György Kepes, the Hungarian-born teacher of light and colour at the new Bauhaus in Chicago who founded the Centre for Advanced Visual Studies at MIT in 1947, and which later, in 1974, was taken over by the Düsseldorf artist Otto Piene.

In Latvia, a high water mark of the kineticists who worked with colour and light in movement was in the 1970s and 1980s. Yet so far they haven’t received the attention they deserve. Why?

The rules varied, depending on which side of the Iron Curtain one was on, but the network involving art, technology and design reveals a fascinating map behind the Iron Curtain. Surprisingly enough, it is almost unknown.
In the West, mobile art, often inspired by circles around the Bauhaus and the Russian avant-garde, was exhibited in metropolitan art centres in Western Europe as well as North and South America. But at home, in the Soviet Union, it was silenced and stowed away in the cellars and archives of museums.

In 1961 the exhibition Movement in Art went on tour to Moderna museet in Stockholm, the Stedelijk Museum in Amsterdam and Louisiana in Copenhagen. The exhibition included Malevich’s Knife-grinder, Tatlin’s living machine and Baranov-Rossine’s optical piano (inspired by Scriabin’s Prometheus). The cover of the catalogue pictured Duchamp’s famous Bicycle Wheel, screwed onto a kitchen chair (1913), a piece which changed art forever. (Figure 1) In the catalogue, Billy Klüver wrote about Tinguely’s self-destructive machine in the Buckminster Fuller geodesic dome in the garden of the Museum of Modern Art: “Stunned viewers watched through the window on 58th Street a [...] performance of extravagant humour, poetry and confusion.” The commissioner of the exhibition, K.G. (Pontus) Hultén, was behind the legendary exhibition Mouvements at the Galerie Denise René in Paris in 1955, and later, in 1974, he became the founding director of the Centre Pompidou in Paris.

If we move behind the Iron Curtain to Moscow, we find a completely different situation, different preconditions. And in the Soviet Union, the artists were even more isolated than in the rest of the Eastern Bloc. The Swiss business-man Jacque Melkonian realized this and decided to help. Melkonian founded and sponsored the unofficial art review A-Ya, published in Paris 1979-1986: “I immediately realised how difficult the life of the Soviet artists, who had to fight for their right for independence from the canons of the state, was in comparison with the situation in Czechoslovakia, Hungary or
Poland [...] The artistic process was confined to the individual; there were no exhibitions, polemics or art market. But in the Soviet Union, the flow of new technology – computers, transistors, TVs – attracted a new type of artist too. However, these artists had (at least) two major difficulties to overcome. Firstly, in the Soviet Union art was taken extremely seriously. It had to arouse enthusiasm for the Party’s struggle to build a Communist paradise – and only that. To put it bluntly, the general rule for the art world was that if the Party did not immediately comprehend what the piece of art was about, it was not allowed to be exhibited – as shown by Khruschev’s comment in the introduction to this article.

Secondly, the Soviet Union was a society of permanent shortages. The kinetic artists needed spare parts to build their machine-driven constructions and that was a problem. To get hold of lamps and transistors, sheets of metal, TV sets, film screens, colour filters, electrical outlets and screws, one had to be in a queue for several weeks – sometimes several years. And that was not always enough. Often the desired technology and necessary building materials existed only in factories, but the factories belonged to the military-industrial complex. Heavy and unwieldy, cumbersome and immovable. Armoured, like the giant Goliath. And David? In the beginning of the 1960s, help arrived from unexpected quarters. Something remarkable happened that would have consequences right up to the fall of the Berlin Wall.

**Form. Colour. Dynamics in Riga, 1978**

On a snow-laden winter’s day around the turn of the year, 1978–1979, the exhibition *Form. Colour. Dynamics* opened in St. Peter’s Cathedral in the centre of Riga. [Figures 2a, 2b, 2c, 2d] Visitors poured in. Glances were lifted up towards the Gothic arches that stretched like tree limbs out towards the sky-high, white-plastered vault. But just then, during this unique exhibition, what filled their eyes was coloured light in a mathematically-programmed dynamic. How was this possible? Showing abstract art in the city’s tallest building, right in front of the Party and the KGB?
Fifty works of art were exhibited in Form. Colour. Dynamics, including the light fountain Celebrations by Andulis Krūmiņš (born 1947), and Kinetic lighthouse by the architects Anda Ārgale (b. 1943), Māris Ārgalis (1954–2008) and Valdis Celms (b. 1943). Celms contributed several kinetic constructions (which I will return to later). Artūrs Riņķis (b. 1942) also contributed a number of works, amongst others, the colour dynamic play of light entitled Development Phases and Guiding Stars, which consisted of perforated polished steel and lamps with light filters. Riņķis had already begun to work at the age of 14, repairing warships. Creeping around in the engine rooms he had learned everything he needed to know about electrical circuits and electronics. He had crossed the Atlantic four times: “The sunsets were incredible.” In St Peter’s, Riņķis set up motors from vacuum cleaners and toys that set objects in motion. He had also a simple hand-made slide projector for his abstract colour shapes that floated against a white background. It made the Party representatives insecure, however, as the power of the totalitarian regime rested on its controlling and explaining everything. Should the exhibition be allowed or should it be closed down? So Moscow sent a critic to make an assessment: “This so-called ‘unique design’ can be discussed,” the critic said. “Design presumes serial mass production […] and only in rare cases is the designer commissioned to make […] unique examples.”

However, unanticipated help appeared. The 1960s saw the automization and rationalization of the assembly line. Industries were being automated and new ways of thinking were needed. The combination of the beauty of mathematics and art opened up possibilities for "artistic constructors", as designers were called in the Soviet Union. Debates were even held on the topic “Can a machine be beautiful?” In addition, thanks to the cult of engineering hailed by atheistic ideology and the celebration of natural sciences, hitherto unimaginable possibilities opened up for kinetic artists.

Celms, Riņķis and Krūmiņš (and many others) were artistic constructors in 1970s Latvia. All three had diplomas in design from the Latvian Academy of Art. Working in design – which was then called “industrial design” and “graphic design” – one was partly under the radar of the office of the art censors, who were particularly focused on oil painting. The censors, who were less interested in ‘technical aesthetics’,
gave greater latitude to the artistic constructors and to their playing and experimenting, than to artists in the prestigious departments of painting and sculpture.

After completing their studies at the Academy of Art, Riņķis and Krūmiņš began to work as artistic constructors at Riga Scientific Research Institute for Radioisotope Apparatus, where they designed electronic devices, light advertisements and kinetic installations. Celms was employed as a designer for the Artists’ Fund in the Latvian Socialist Soviet Republic and made graphic profiles for industry, instruments for astrophysics laboratories and photomontages. [Figures 3, 4a, 4b, 4c]

Interest in alternative art, however, began several years earlier when Celms took a night train from Riga to Moscow in order to meet Viacheslav Koleichuk. Koleichuk had been a member of the artists’ collective Dvizhenie (the Russian word for movement, dynamics, flux), which succeeded in the inconceivable feat of organizing the exhibition Cyber-theater in Leningrad in 1967 and carrying out comprehensive commissions for the Ministry of Electronic Industry with kinetic installations like the Electrical Garden and Kinetical Games in Moscow. In 1967 Koleichuk’s 12-metre high mobile sculpture Atom had been unveiled with pomp and splendor on the open space in front of the Kurchatov Institute, the country’s leading institute for nuclear research, to music composed by the electronic music pioneer, Lev Termen.

Koleichuk showed Celms around the Soviet Exhibition of Achievements of the People’s Economy – VDNKh, where the design institute VNIITE had its main office
4a. Artūrs Rinkis. Workbench for radioisotopic measurements. Created for the Buran project – a Russian analogue for the reusable Shuttle spacecraft – to test the quality of ceramic protective plates. 1987


4c. Artūrs Rinkis. Mobile radioisotope material density meter. 1975
VNIITE was the USSR Research Institute for Technical Aesthetics, which was founded in Moscow in 1962 and had the task of updating industry and working conditions in a more human-friendly way. At VDNKh, the pavilions of the various Soviet republics were gathered around the Friendship of Nations’ Fountain: Ukraine, Belarus, and North Caucasus. The Volga Region featured a massive frieze of a hydroelectric dam. In the 1960s the Pavilion of Latvia became the Pavilion of Physics, to emphasize the importance of science as fundamental for the whole country. The enormous site also included, beside the Space Pavilion, the Pavilion of Atomic Energy, the Meat Industry Pavilion and many more, not to forget the Radio Electronics Pavilion, and Pavilion No 55 for Electrification.

The symbolic value and utility of electricity

Electricity had an enormous symbolic value in the Soviet Union. Lenin’s slogan “Communism equals Soviet power plus the electrification of the whole country” sparked off the rapid industrialization of the Five-year Plan. Power stations along Russia’s giant rivers delivered much needed energy. Electricity stood for the new era – away from dirt and darkness – on a symbolic as well as a tangible level.

Electricity ran the factories. Electricity heated the food in the collective kitchens. Electricity drove the motorized art of the kinetic artists. Electricity had to be useful,
but there was much of it. There was scope for experiment. And as we noted earlier, industry needed new ideas. During the 1960s political thaw, a number of experimental institutes were established throughout the whole country. For example, in the city of Kazan on the Volga river, physics teacher Bulat Galeyev founded the construction bureau Prometheus at the State Research Institute for Aviation Engineering. To what extent Galeyev’s experiments with sound, light and video in the spirit of the pioneer of synaesthesia Scriabin were useful for engineering research, is an open question, but the authorities allowed them.7

"The authorities did not want to seem unmodern," says Jānis Borgs, an important artist and art scholar in Latvian cultural life.8 Moreover, Borgs helped many to keep up to date with what was happening in the West. Borgs received art collectors from all over the world (including, amongst others, Mark Allen Svede from the Norton and Nancy Dodge Collection of Nonconformist Art from the Soviet Union in the USA), and was good friends with Valdis Ābolinš, leader of NGBK (Neue Gesellschaft für bildende Kunst) in West Berlin. When Borgs returned from a visit to Foksal Gallery in Warsaw in the mid-1970s, he brought with him “a whole suitcase of information”, which he generously shared with everyone who was interested. Borgs and some of his fellow students even succeeded in organizing an exhibition with Op and Pop art in the House of Knowledge in Riga in 1971.9 The House of Knowledge also contained the city’s Planetarium, although the cupola was originally built to serve the Nativity of Christ Orthodox Cathedral. Ironically enough, techno-culture and science occupied a space devoted to religion – with the help of the All-Union Leninist Young Communist League, Komsomol, who kept the keys to premises for cultural and educational activities.

Moscow criticizes the Latvian kineticists

Let us return to 1978 and Form. Colour. Dynamics to take a closer look at how it was received by the critic sent from Moscow. What was it with this “unique design”, mentioned earlier, that attracted his attention? Who was the critic and what sort of publication did he write for? [Figure 5]

The critic, Vladimir Aronov, was an influential art and design theoretician who had worked for the journal Tekhnicheskaia estetika since the mid-1960s. Aronov took over responsibility for theory and history in the publication’s editorial committee and soon TE became one of the country’s leading design journals. It published the most recent information regarding technology and science, news from abroad, new materials, information about new technology, conferences and exhibitions. Tekhnicheskaia estetika was published by VNIITE, a centre for research on design. Its target group was the engineering intelligentsia, a relatively well-educated public. The management of the research institute included art historians who ensured that Lenin’s old revolutionary slogan “Artists for industry” was restored to its rightful place. The combination of technology and art had its roots in 1920s Constructivism with Rodchenko, the Stenberg brothers and Gustavs Klucis, all of whom became important role models for the 1960s – 1970s generation. The aim of VNIITE’s research was to make production more efficient through combining aesthetics with the technological possibilities developed during the 1960s.

Amongst Celms’ works exhibited in Form. Colour. Dynamics was Daugava, a light box with an abstract play of light in a pre-programmed loop; Positron, an “artistic con-
struction” which had been commissioned by a company producing electronic devices in Ukraine, and a sculpture which was called Design Proposal of the Antenna of the Radio Telescope. (See page 163) For their art works in this exhibition, Krūmiņš, Riņķis and Celms had come up with the term “unique design” as a way of avoiding landing in a situation where they would be forced to defend their creating abstract art, insofar as that was not allowed to show in public, in the USSR. After all, they wanted to present their art to an audience. So what did the Moscow critic do? Aronov emphasized the technical aspects in terms of “real pragmatic exponents” and “radio physics” – but his analysis could just as well be about a work of art at an art museum. About the antenna he wrote: “The technical project RTS(P)30 succeeded in creating a dynamic sculptural composition which forged a connection with the physical construction, thanks to its rhythmical interaction between smooth and ribcage structured surfaces, round and angular, large and small forms”.  

As we see, Aronov describes Celms’ model with respect, indeed almost tenderly – but that is not all. In addition to focusing on the artistic qualities, the constructor has also – just thanks to the ‘unique’ in the design – succeeded in obtaining an industrial patent, which of course legitimatized it within industry. In his skillful argumentation Aronov managed to transform an abstract art work that could be subjected to criticism
into something entirely different. He also kindly underlined that the Latvian exhibition fulfilled its purpose by "demonstrating the experimental possibilities of new materials" in various constellations. By describing "unique design" using concepts from engineering, Aronov built elegant bridges between the world of the artists and that of the engineers.

Aronov is on the side of the artists, while at the same time giving technicians the possibility to discover qualities other than the strictly functional in the insides of machines. But he goes a good deal further. The initiated theoretician could even consider that this type of "experiment" could be useful in some of "the rare cases when the designer is supposed to design unique examples of particularly complex control boards, instruments or machines." 

"Complex control boards". Wow! Suddenly we have been moved way beyond an exhibition in an old church in Riga to the heart of the military-industrial complex! Indeed, not only to its heart but also to its brain. Here, at this point, we need to zoom out and put on wide-angled lenses to see the large picture.

**For the well-being of the operator pressing the red button: Objects for improvement of the work environment for the well-being of the operator pressing the red button**

In the Soviet Union the various regions were connected together by huge networks for the production of energy. Hydroelectric power, nuclear power, oil and gas. With its enormous distances (with 11 time zones from east to west), centralized remote control was important, regardless of whether it concerned control of the nuclear power plant Ignalina in Latvia’s neighbouring republic of Lithuania or the energy conglomerate Belglavenergo in Belarus, where a single switch could turn off all the power stations in the whole country. With such centralization, the persons sitting in front of the remote control boards that directed production had an enormous responsibility. The more centralized the network for the energy systems’ production and distribution became, the greater the responsibility resting on the operators’ shoulders. Therefore it was important that their working conditions were well thought out. Generally, during the automation of industry, a great deal of the debate concerned how to improve the organization of labour and work places. Precisely this was an important objective for technical aesthetics – raising the quality of workplace conditions. Operators were found at all factories, on every assembly line, in all industrial conglomerates and at all power stations.

In the Soviet system, the Baltic countries were considered good examples of city planning and of designing industrial environments. As one example, the assembly line at the radio factory VEF in Riga was pictured on the cover of the March issue of Tekhnicheskaia estetika in 1973, showing how industrial manufacturing could be carried out in a humane way. Ergonomics and design must go hand in hand, was the message implied. A well-planned work environment had to include places for both hard work and short breaks. Workers might live far away from their jobs, they might work long shifts. Pauses for all the senses were considered important at workplaces, both indoors and outdoors – greenery for the eyes and the nose. Comfortable furniture. Peaceful sounds of water fountains.

The head of a newly established electronic company Positron, in the city of Ivanovo-Frankovsk in western Ukraine, took note of all this and commissioned a piece
from Valdis Celms. Celms’ artistic construction *Positron* (1976; see page 165–169) was intended to have a relaxing effect on the employees. The several metre high, spherical metal construction would be placed in the open space in front of the main building, its round form contrasting strikingly with the strict geometric shapes of the surrounding buildings. Its pre-programmed loops of colour changed between weekdays and Sundays: one in turquoise and crystal white for workdays, and several others – lilac, red and pink wedged into green – for Sundays and other holidays. By turning on its own axis, *Positron* created a play of light and reflexes that was meant to be both stimulating and calming.

Another of Celms’ kinetic light constructions was *Daugava* (1974; see page 177). A screen measuring 115 x 165 cm constructed by various colour filters and controlled by a programme loop of seven parallel fields creates an illusion of streams of water that move in different directions. A simulation of the movements of a river in different weather conditions and at different depths. Yellow, with bands of green, purple and red inverting and spilling into each other. Then as if diving much deeper under water, towards the bottom of the river, farther away from the sun breaking through the surface of the water, to colder water, going into darker purple, green, blue. Celms: “I liked looking at the water when I was out fishing as a child. The rhythm that was broken...
as if through a prism... One doesn’t lose time – one lives time. It was that sensation I tried to communicate.” Lumino-kinetic art as objects for contemplation, drawing the viewer into magical, dream-like worlds, a meditation that transfixes time. “I want to make machines that fly under water, that is the feeling I want to convey,” says Artūrs Riņķis.

In the 1970s and 1980s, lumino-kinetic art was well suited to the contemporary design-ergonomic research discourse for steering and management from control rooms, where it was a matter of “finding ways of optimizing the psychological climate under conditions where the operator finds himself isolated for long periods in a small space”, according to a research report on technical aesthetics from VNIITE in 1972. In other words, the one in charge of pressing the red control button in case of emergency must be relaxed and feel well in order to perform well. In 1974, the same year that the Riga Hydroelectric Power Plant was opened by the River Daugava, Celms’ light piece Daugava was finished. Coincidence or not, Daugava could very well be mass produced, both in a large format or as it is now: a small, movable box to facilitate contemplation during meditative and energizing tea breaks near the control room.

The artists who dared to approach the military industrial complex were given new possibilities. But at the same time such approaches involved balancing over a
sinkhole. Latvia was, after all, occupied by a dictatorship that had, to say the least, a poisonous attitude to art and individualism. Nevertheless, the collective worked together in the name of progress. There was a shared interest in being in the front line: for the authorities – to win the race against the hostile rest of the world; for the kineticists – to realize their projects. After all – their common interest was to realize their visions.

The gift of words was an important prerequisite for being able to manoeuvre in the minefield, where the factories were owned by the military and exhibition venues were utilised by the Party. Artists found a way through this minefield by virtue of the fact that lumino-kinetic art could be filled with a wide variety of content. “Technology and machines are per se non-political”, says Celms innocently. “It was about giving art alternative captions”. 15 It was actually quite simple. Instead of calling one’s work “art”, one called it something else. Today it is less important what we choose to call our machines – “artistic constructions” or “experiments”, or “unique design” or “luminous kineticism”. During the Soviet period, however, when they were made and exhibited, what they were called was a matter of life or death of the art piece. With their innocent machines, which were not called art, but “prototypes”, “experiments”, “models” or “unique designs”, the Riga group managed to exhibit abstract, kinetic art even in public places and with the approval of the Soviet authorities in the midst of the Cold War.

Still today, lumino-kineticism does not like being positioned or categorized. Still today, mobile art moves on the fringes of the art establishment.16 It lies between several worlds – art, science, technology. But thanks to their clever and inventive strategies, the kineticists succeeded with something extraordinary. They broke the totalitarian spell, and in a system where only the collective view was accepted, where the majority’s perception of the world ruled, what they did was exceptional. To explain and encompass absolutely everything was the evil in the totalitarian project. Compelling everyone to see the world in exactly the same way was one aspect of the totalitarian dictatorship wreaking severe damage. Yet the kineticists managed to show that there were different ways of seeing things. [Figures 6, 7, 8]

Thanks to the ingenious and flexible David, who succeeded in deceiving a clumsy Goliath, these playful kinetic models still exist for us today. These “experiments”, or whatever we call them now, are most certainly works of art in their own right. Thanks to the sketches, the technical drawings and the documentation, we are also given the opportunity to have an insight into the working process. The ad hoc models of steel, string, springs and hand-made programme discs exist for us to see – as do the collages and photomontages depicting potential more or less utopian city spaces.

The networks of art and technology, science, architecture and design draw a fascinating map behind the Iron Curtain. In the former Eastern Bloc and the Soviet Union, this was terrain where secret classified technology in closed-off factories and research institutes met with the newest currents in art. Surprisingly enough, this is altogether unknown, including the fruitful collaboration of artists’ couples, expanding into the fascinating story of kinetic art and gender, and child perception and creativity within heavy industry, only to mention a few ideas. So hopefully the time has come at last for this wonderfully unpredictable, witty and meditative motor-driven art from Ukraine and Russia and Latvia to be introduced to a larger public.
Notes

1 The title quote comes from the artist Artūrs Riņķis, who the author interviewed during a sunset car ride from Riga to Riņķis' *Art Garden In the Middle of Nowhere* in the Latvian countryside, featuring lumino-kinetic objects in a garden with elements of steam punk and Japanese plants, in August 2014. The author would like to take this opportunity to thank Irēna Bužinska for inspiring conversations and information in Latvia in summer 2014, and to leva Astahovska for inviting me to write this text and for her valuable comments on it. Thanks also to Riksbankens Jubileumsfond: The Swedish Foundation for Humanities and Social Sciences, and the Swedish Research Council, for financing my research; and to the Max Planck Institute for the History of Science (MPIWG) in Berlin, for making possible the collection of material on Soviet technical aesthetics.


3 Author’s interview with Artūrs Riņķis, Latvia, August 2014.


6 Lev Termen was the originator of the musical instrument termenvox. Termen had also developed wiretapping devices in the 1930s under Stalin.


8 Author’s interview with Janis Borgs at Café Osiris in Riga, August 2014.


11 Ibid.

12 Author’s interview with Valdis Celms, in front of his piece Daugava at the exhibition Visionary Structures. From Johansons to Johansons at the National Library of Latvia in Riga, August 2014.

13 Author’s interview with Artūrs Riņķis, August 2014.


15 Author’s interview with Valdis Celms in Riga, August 2014.