Rediscovery of drinking water fountains in Stockholm

Revaz Berdzenishvili

Konstfack
Univesity of Arts, Craft and Design

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Tutors: Tor Lindstrand, Christian Björk
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MOTIVATION

I study interior architecture and furniture design at Konstfack in Stockholm. You are now reading my master’s thesis, written at Konstfack during the spring semester 2019. This is the tenth semester and throughout the education, I have learned a number of methods to develop and produce different design proposals. In this project I use a number of these methods and tools. I map and investigate a product category, drinking water fountains in this particular project. Surveys generate issues and challenges that can be developed and solved. In this project I have asked questions such as: why have most historical water fountains lost their original function. Can I develop a new, modern water fountain for a public space? Historical evidence in the past has recorded human activity when water fountains were introduced first in London. The fountain became immediately popular, used by 7,000 people a day. And within 11 years there were 140 fountains made.¹ My will and aim is to create similar social integrity, that leads to greener and better solutions for our future.

This project is about water and I could surely say that it touches every citizen of Sweden and everyone in the world. All of us have the basic need for water. Through the project I have tried to overcome obstacles, using water to break the barriers of social inactivity. I hope citizens in the Western world, in the modern, industrialized and urbanized world will be able to rethink our behaviors. It seems to be absolutely crucial that we are adapting to more behavior-demanding actions and, anticipating environmental issues.² We should be using more local and natural resources, instead of consumerism.

To be able to develop my design proposals I have used different methods. Several methods are investigations, others are more object-related, close to materials. I used hand sketches and data driven methods. I have also worked with small-scale prototypes and full scale models. So, in the upcoming parts of my report I will write about my exploration in history and later on my working and design process.
EXPLORATION IN HISTORY AND THEORY

The overall aim with this project is to highlight small urban structures that tends to be forgotten: the public drinking water fountain in urban areas. And in this project I explore this category of urban object, and write about its history, their general locations and design functions. I gather knowledge from the modern urban residents about their attitudes to drinking water fountains. In this project I develop my own design proposal, and visualize and materialize a drinking fountain.

It can be stated that early public fountains today are under the threat. Drinking water fountains are important historical heritage, for the city and its citizens. Before portable water was provided in private homes, water for drinking was made available to citizens through access to public fountains and wells. Drinking fountains were once a revered feature of urban life, a celebration of the tremendous technological and political capital, it provides clean drinking water to a community.

Open urban public spaces are not only powerful symbols of democracy and equality. They are fundamental to an egalitarian and democratic society. And these urban, public water fountains have historically had an important function in public spaces. Urban symbolism in a historic city, with its quarters, architecture and buildings, contributes to an identity and collective memory.
This might even form the city dwellers identity, where they meet etcetera. Water fountains was often, and some still are, an urban functional and symbolic object that supplied citizens with fresh water - which we all are depended on - and at the same time water fountains gathered citizens in a narrow geographical area, a kind of urban magnet, where many of the city’s residents could meet.

With such theoretical knowledge, and with the idea that public water fountains can have great symbolic value, I started exploring water fountains in Stockholm. It was hard to find them, several of them were found via the internet and I visited fountains at several downtown addresses. Generally, the geometry and size of the water fountains are the same. But just like in other cities, it is common in Stockholm to have drinking fountains inside buildings and usually there are fountains that are older and have historical statues, value and appearance.

This leads us into a brief historical memorandum: reading about historical facts about Stockholm, one learns that water is important for the identity of the city. Saltsjön leads to the archipelago and the lake Mälaren meets each other in the oldest parts of the city - Gamla stan - and water in general is one of the city’s most dominant nature elements.
Historical facts about Stockholm and the availability of water show that water was usually collected through wells drilled in different parts of the city. In the early 17th century, it became popular, at least among the rich who had time and opportunity, to drink water from “healthy wells”. Clean, natural mineral water from healthy wells was considered specially good for health and one of the wells, “Djugårdsbrun”, was considered to provide particularly clean water.\(^3\)

But water was not always safe to drink. Household waste, from kitchen, cleaning and animal waste could be left directly on the street. Consequently, when it was raining, the water waste ended up in the groundwater. Wells could be contaminated and people became infected with diseases. The environment around wells was not clean either. In 1834, cholera epidemics first spread in Stockholm with approximately 3,700 reported deaths. In Stockholm for that reason, people refused to drink water and instead drank beer.\(^4\)

Today, the city is known for its clean water but for generations the Stockholmers have bought bottled water. In the early 19th century, it was common for water bottles to be sold at pharmacies. It came to the end of the 20th century that water bottles began to be sold in special water shops. These stores were almost like a cafe. Most water bottles that were sold consisted of fresh water and also carbonated water. One of the city’s more well-known water shops was located in Kungsträdgården. It was operated until 1933 and was close to Jacobs Church. This particular water shop is very well known as a murder scene in a classic Swedish literature. In Hjalmar Söderberg’s famous book, Doctor Glass, the priest Gregorius is killed in a water shop at Kungsträdgården.
Water fountains became an effective response to the sanitary problems of water. But it is difficult to know exactly when the first drinking fountain was introduced in Stockholm. What we know, today there are only twelve public fountains, all of the same kind, in the streets of Stockholm. But in a modern city life with a fast-paced existence, it might be difficult to track the number of public fountains in Stockholm. A critical viewer can easily think that no one takes the actual responsibility for their revival and reinvention, they are faded in the streets of Stockholm. Some of the historical water fountains are out of order and some of them are abandoned. Stockholm is a city that is rich and famous for its clean water. Nevertheless, there are just a few drinking fountains to find in its public spaces.

I believe that lack of accessible drinking water in public spaces might have one or several impacts on the environment. One impact is obvious. If a public water fountain is broken or badly maintained or placed so that it is not used, we will probably buy water in a plastic bottle from the nearest store. I understood this when by chance I met an abandoned water fountain near the Allhelgonan kyrkan at Södermalm. The abandoned water fountain usually stands there alone, broken, rusty. I slowly realized that the water fountain is directly linked to the consumerism society. Water distribution in urban and suburban context are through monetary control and citizen misses out opportunity for free drinking water in streets and parks. During several walks in Stockholm I became thirsty but had no water. I realized that either I buy water or go home to drink. I pay 250 times more in just one plastic water bottle compared to household water cost, according to Stockholmsvatten. And our environment, is polluted by plastic bottles, with their production and the transportation of water bottles.

A course in the education program, on recycling and materials, affected the direction in my degree project, and I realized the importance of including these issues in my own project. An article from a design magazine - that touched the theme Scarcity - precisely reflects my views on the current situation in the field of design and interior design: “Scarcity demands that designers move their attention beyond the object, because just adding more to the world exacerbates the problem”. Why should a city full of fresh water be isolated from clean and free water? And when did you last time drink water from a drinking fountain in Stockholm? In this degree project I try to overcome obstacles and give life to new sustainable future.
The overall intention in this project is to develop and design a suggestion, a design proposal, a new drinking fountain, hypothetically placed in an urban place with the name Bysistorget.

The town square, Bysistorget, which is located on Hornsgatan between Torkel Knutssonsgatan and Rosenlundsgatan on Södermalm, has in recent years become a pleasant and beautiful little square next to the fairly busy Hornsgatan. The square has been named after a prison building that lay on Hornsgatan between 1782 and 1872. The arrest was called Bysis or Old Bysis (Gamla Bysis) among other things, it is said that Carl Mikael Bellman, who sometimes had financial hardship, sat arrested here for periods. The Japanese cherry trees give both the character and beauty to the place, not least at the end of April / May, when they become rose-flowering trees. The place has many urban elements, cafes and restaurants. Here you find, for example, Sophie’s café in the corner towards Torkel Knutssonsgatan, Mellqvist coffee shop and Legumés Vegetarian food café. Here is also a bookstore - Bysis book and papers.

The square, Bysistorget, located on Södermalm in Stockholm, is the location I have selected. My aim is to develop a hypothetical design proposal, a new drinking fountain, for this location, with the intention to create social exercise and mobility. As mentioned above, a shared space can be a place and a space that create collective memories and architectural monuments in a public space and express group identity. In public realm we often encounter the “other” worlds, and it might be a lot of surprises and reflections to explore out there. Ideas of public and private ownership and, in turn, public and private space and access was highlighted by researchers Bianchini, F. and Schwengel, H. in a text entitled “(1991) ‘Re-imagining the city’, they write a number of thoughts I find interesting and relevant in my own project:

“The public realm is the sphere of social relations going beyond our own circle of friendship and of family and professional relations. The idea of public realm is bound up with the ideas of expending one’s own horizons of experiment, adventure, discovery surprise.”

I want to give depth to the project, with different layers of importance. I want to develop, design and hypothetically reintroduce a drinking fountain into my chosen location, Bysistorget, to reinforce the local identity and emphasize the need for water supply by proposing a new water fountain. I also see my proposal as critical from at least two perspectives. Water fountains have historically had an important function in the city, they provided its inhabitants with water. We live not least at a time when the future is uncertain, and who knows how the cities of the future will provide their inhabitants with water. Today, many buy their water in plastic bottles, but plastic as a material has a dark future. At the same time, we see a strong tendency that existing water fountains are neither maintained and apparently tend to disappear from the streets of Stockholm.

With my design proposal, I emphasize the importance that there are more water fountains in our urban public spaces in the future. And my aim is to create new identity for a public
square that might gain public trust. The new drinking fountain exceeds function and becomes a sculpture and answers everyone’s need to have access to water.

PUBLIC INQUIRY

Apparently at the same time as I was investigating water fountains, a friend of mine, Frida Wallin, also interior architect student, did research on water fountains. Her perspective was to explore these urban objects through lenses of sustainability. We decided to investigate existing water fountains together. One of our main concerns was to understand citizen’s relations towards drinking fountains. We worked with two existing water fountains, in different locations in Stockholm. It was my first design process when we started looking for some form of intervention in public space.

Green translucent plexiglas boxes was placed on two fountains in different locations in Stockholm. We did this just to highlight a question. People passing by could interact with them. I invited them to write the answer on our question. With this method I was able to document written information on boxes before they disappeared. The design aesthetics and this method (to cover fountains with Plexiglas boxes) played an important role later on in my design process. For me the shiny, reflective, clean, and semi transparent boxes had a feeling of refreshment of the existing fountain, that was not in a good shape. The fountain was half covered, but still the fountain was seen through the transparent plexiglas. In other words, the new semi transparent “skin” covered the fountain, and later in my process I used the same principle to cover a fountain with so called new skin but with different material.
I asked a number of questions for Stockholmers who passed by:

“Have you ever used drinking water fountains in Stockholm? Why and why not?

I got a number of answers:

1. I remember the 1979.

2. Yes, of coarse.

3. No, it is very unclear that water is clean. If there were many I would use one.

4. No, never.

5. Yes.

6. Yes, during festivals there are many.

7. Yes, but they disappeared.

8. Yes, there should be hundreds of them.

9. Yes, there is one near biological museum and it works during summer.

10. Yes.

11. I do not think so?

12. Many children are using them often.

13. No, I did not know that they existed.

14. No, where are they?

Through and during this exercise and interactions, we learned something about how residents can relate to an urban and rarely used object. In other words, we got insights into social patterns and people’s attitudes and relationship to drinking fountains and water. We chose to leave our additive supplements but two days later we discovered that the boxes were broken. Apparently they had come to use to a number of children and the other seemed to have disappeared. Later as we will see, I will interview the citizens face to face to learn more and thus get more detailed information.
The next step in my project is of a more geological, biological and philosophical nature. I observed phenomena that exist in both nature and biology, among other things, I viewed water from far above and observed movement patterns in water and how water can move on the earth’s surface. This led me to observe this phenomenon on a smaller scale, more precisely how blood circulates in a biological system of blood vessels and arteries. Fluids such as blood and water flow, but also communication of neurons in the brain has similar structural patterns, which thus resemble each other, both in biological organisms and in phenomena in nature.

A poet would possibly call this “the veins of life”, and a pattern that illustrate a life system. I am very interested in life and its definitions and life’s transience and coincidence can be communicated. I find that the phenomenon has corresponded to natural structures and patterns in many contiguous curved lines. Such a connection, patterns and structures can be observed in architecture. In a functional building, for example, a plumbing system for water distribution can be fully exposed and visible. These observations are very important for the project because in the end we will see how this idea is implemented and manifested in the creation of a design proposal, a water fountain hypothetically placed in an urban place with the name Bysistorget at Södermalm in Stockholm.
HARVESTING RAINWATER

At one stage in this project, my ambition was to produce a real and functioning drinking fountain, for Stockholm City. I therefore contacted responsible officials in the City Council of Stockholm. But this part of the project was something of a disappointment. I was told that the city generally did not plan to order new fountains, partly because of maintenance costs. It is also important to emphasize that the City of Stockholm has political visions for a sustainable and green city, an ambition to be achieved in close dialogue with the citizens. The political ambition is for people with disabilities of all ages to become fully involved in society and that there is equality in living conditions for everyone who lives in Stockholm. There are several arguments that the drinking water fountains are not made for people with disabilities. But it has been difficult, almost impossible, to initiate a dialogue with the authorities about the drinking water fountains. I gave up and instead I investigated other types of systems that can collect and distribute water in public spaces.

My conceptual sketch about harvesting rain water in urban context, is a system for collecting rain water which operates in different city locations. The system purifies rain water to supply citizens with fresh water. Inside the tower there are different layers of water filters, such as sand, coarse sand, pebbles, concentrated charcoal and UV-light. Such tower could collect rain water on its roof and by gravity pass water through layers of filters mentioned above. This method for further water purification needs chemicals such as sodium to reach the drinkable quality of water. And also laboratory tests are necessary to ensure water quality.
I spent a lot of time learning about harvesting rainwater, and imagined different ways how it could be done. At the beginning of the project, there was a great focus on sustainability and listening to my own inner voice. I have always strived to define the composition of my project. I decided to design my design proposals without a direct stakeholder, such as Stockholm city. My idea of harvesting water was that the system would distribute rainwater to the citizens. But I was far from sure about how the system would work and what scale the system should have. Rainwater can be reused in a kind of constructed circular system. It is good for the environment, but at the same time it can be dangerous because bacteria can easily stay in not filtered water. Important insights were that exploration of rainwater should involve researchers and that the water quality should be tested in laboratories, that there are different ways to ensure quality in water, chemical, microbiological etc.

There are different ways of securing water quality but they are usually costly. I have also learned how water is filtered in Sweden, the water used in household enviroment. And based on that what it meant to make my own water filter with sand, activated carbon and UV-ultraviolet light. The design would have a modest size and through the filtering process I could illustrate the process, how dirty water is transformed into clean, transparent water. This method is a demonstration of watercolor change, water conversion. The purpose of rain waterproofing would be informative design that would trigger climate issues and also basic knowledge for water treatment. When I was looking for other methods for harvesting water, I discovered a solution that converts fog from air to drinkable water. Especially the semi-transparent, soft surface affected my process and design-thinking later in process. Creating water filters and clean water is a challenge for a researcher. I appreciate leaving my comfort zone and doing practical studies in this project, but I thought it was too time-consuming to learn about biological and chemical formulas. Therefore, the idea of harvesting rainwater never became real, even though technical and functional parts were overwhelming.
EXPLORING EXISTING WATER FOUNTAINS.

In parallel, my exploration of existing water fountains was an ongoing project, I examined details, colors, material and locations and from discussions with teachers and student colleagues, I made the decision to investigate existing fountains more. Why? An important component of a project like this is to create new knowledge. The learning outcomes are about the theme being relevant to the subject field interior design courses and that as a designer I have an artistic and academic approach. A prerequisite for producing a new design proposal is to analyze, understand and start from existing structures. Then it might be possible to develop or create knowledge. I had existing fountains as an overall motif and I started sketching them with pen and paper. I gained more knowledge about the fountain, its materials, geometry and function. And perhaps most importantly: I learned more about the spatial elements where they are usually located.

The sketches of the existing drinking fountains in different locations of Stockholm. The study helped me to understand and monitor surrounding spaces around the fountains. Which later revealed to be inefficient areas for the fountains to function properly. Also the sketch helped me to realize the insignificant scale of the fountain design in urban situation.

Fjällgatan, Södermalm

Hezeliusporten, Stockholm

Hornsgatan, Södermalm

Bergsunds strand, Södermalm

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In this part of the process I performed a graphic illustration of a fountain in a speculative user scenario. Sara Wigglesworth inspired me, drawing by Wigglesworth with the title: “Table Manners”. They gave me an idea; to create interaction between the citizens and the drinking fountain. One of my drawings shows the relationship between people and a fountain as well as how animals can relate to a fountain, with body movements and posture, which might be necessary to be able to drink water from a fountain. The drawing also inspired to continue with this idea, because human contours were placed together and created a visual graphic tension and the effect of overlapping strokes made me to use similar effects later in my project for the new fountain.

The sketch illustrates my study of human and animal body movement and posture in relation to the existing fountain. The study shows that the water intake from a spigot is possible from only a single point. Also the analysis of the sketch helps me to realize a down side of the exiting fountain design. The single spigot on a fountain could potentially be used by many different living beings through oral interaction, which in some extend makes the existing drinking fountain not hygienic.

An important lesson during my investigations of the fountain’s details and materials is that the existing fountains are usually placed without reasonable logic in a context, in the city and in urban planning. Half of the fountains are located in the streets with little human presence, and partially lose their function because they are rarely used. A poet would possibly compare the existing water fountains with mushrooms, which randomly grow in a city forest. Interviews with citizens also indicate the problem of a fountain’s visibility / invisibility. Most people do not seem to know its existence, if they exist, or in what places. I liked the idea of the poetic idea that fountains can be likened to fungi that randomly grow in a city forest. The idea made me develop a concept where the drinking fountains would “grow as mushrooms “on the streets. I imagined that the underground pipes would rise above ground level and they would grow up in the pipes to distribute water. The pipes would be new water devices. The pipes are round and their aesthetics shaped my design and I made 3D-printed models for a study. The underground network of pipes has connections that we usually do not see. To expose some
water pipes I considered as a simple and exciting design decision. Later the idea to rise (grow) water pipes from the ground level helped me to develop important parts for the new fountain.

I studied modern fountains in general, how they change and evolve with time. Today drinking fountains are more flexible and can adopt to meet everyone’s needs, including a dog and a disabled person.  

Conceptual 3D model, of water tubes rising from a ground. I imagined the tubular mass, concentrated together on different heights. If we imagine, in reality it should have a size of an average drinking fountain. Each single tube would have its own running water.

In this excercise I made small scale sculptures. In abstract terms, round prolonged, solid or hallow models are potential new pipes and drinking fountains. They are part of the process and physical methods for my project.

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INTERVIEW WITH CITIZENS AND THE SECOND SKIN

Exploration of the exhibiting fountains made me also to explore citizen’s opinions and their relations towards existing fountains. I wanted to know details how people use or not use fountains. For that reason, I interviewed people in public spaces. I have explored that people have different opinions and comments, but general and homogeneous answers lay in hidden parts. Existing fountains as I learned are not on a periphery of vision to citizens, people have hard times seeing and recognizing the existing fountains. The dialogue with citizens gave me an insight and direction to make a proposition to an existing fountain.

Interview:

Hjalmar:
I have not seen them much, but those I have seen are broken I think. But if they were out there I would use them. He sat in park crafting wood with axe and knife.

Erik:
I know that they exist but I have never used them. And if they will be around I don’t think that I will use them.

Conard and Sonja:
These people were not from Stockholm. They have never used drinking water fountains but they will if it will be fresh.

Emmy and Noa:
Noa: I think there is one drinking fountain in Tanto. Emmy: I would use it if they existed but Noa said he would not.

Matthias:
I always carry juice with me. I have never seen them but if they existed I would definitely use it. I think water tubes that are connected to a drinking fountain should be clean so it is hygienic.

Katrin:
I know one drinking fountain exists in Mälarparken. And I think if the drinking fountains were positioned in right places and had good proportions and form people might use them.

Michel, Martin and Isabella:
We use drinking fountain at Saint Erikplan. We think they stopped working in town and if there are many drinking fountains in Stockholm we would use them.

Emma and Lisa:
I think they are not fresh, people put trash on existing drinking fountains, snus and cigarettes. There is Pressbyrå and shops in town so there is no reason to have drinking fountains. Lisa: It would be good if there were more fountains. It would be practical. I want there to be more drinking fountains. Bars are everywhere but not water.

Frida:
I have not used them but I know that they are somewhere. I always carry water bottle with me, but if there were more drinking fountains I would use them.

Joar:
No I have never used them, but I am from Gothenburg and I think there were some there. I remember I have used them when I was child. I think old ones look not fresh. If it was more fresh I would use them, for example if water does not touch anything when comes out from fountain.

Marcus and Martin:
Marcus: I have not used them. Martin: I have used them outside Sweden. In Greece there are many. I think there is one in Gamlastan. And if there were many it would be nice for the tourists. I think these fountains have no roof cover, so when it rains they get dirty.

Evelin:
I have not seen them in Stockholm. But I have used them in Rome, if there were many I would definitely use them. I have not seen them here.

Nisse:
I must have used them before, I think one is in Mariatorget, I see them seldom, I don’t think they still exist.

Hanna:
They are not in Stockholm. I have never seen them. If they are fresh, I am going to use them and if I see others do use them I would also.

Anna:
I have not seen them. And I am not going to use them if they were around. I really don’t know. I have no rush to drink water. I am buying water bottle if I need one.

Louis and Julia:
We have not seen any. If there were more we would use them. I usually try not to buy water, I usually take it with me.

Hebba:
I have seen fountain in Gamlastan. I would use them in warm day. Otherwise I buy water. It could be good if there was possibility to wash hands with fountain.

Kajsa:
No I have never seen them, but I do not think I am going to use them anyway. It is the same as public toilets, I don’t want to use them. They are not fresh.

Nata:
I have used them once, there is one drinking fountain in Skansen. I think it is not nice, if its open and gets dirty when leaves falls on them or children play with them.
After interviews with public in Stockholm, I have learned that the existing fountains are not visible to public in streets. And I decided to interrogate in urban space. And not to create hazard and chaos in urban fabric but rather make a surprise with a new design into city life of everyday routines. With my first intentions I planned to decode, edit and involve my design possibilities, to reshape the existing water fountain in Bysistorget. Since these fountains are rare in Stockholm, are not working, look forgotten, and will soon disappear, have no real identity, maybe I could remind everyone to –rediscover- them. I believe every citizen has right to have access to water. UN states following “The right to water entitles everyone to have access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use.”

But it is hard to agree with the reality for drinking water situation in Stockholm, firstly some citizens think and feel based on their experiences with the existing fountains instinctively that they are not sure if it is safe to drink from a street drinking fountain, interviews clearly show, hygienic mistrust from citizens towards the fountains in Stockholm.

I decided to create semi transparent skin around the fountain at Bysistorget, the influence that came from the green Plexiglas, and Arturo Vittori’s Warka Water tower. But now in durable material, in perforated steel, which could stand in public space. But before I tried my idea in real scale, I made models in scale one to ten and purchased thin stretched metal, the most relevant material for my scale model experimentations. I made different enclosures (skins) around a fountain and observed how to accomplish the same task, the construction tasks in real scale.

I had to contact different metal manufacturers to find metal I was interested in to build real scale model. To find perforated metal is not easy, first of all metal manufacturer will not sell limited amount of metal sheets, and waiting time and prices are high, and if you are lucky you will find the exact proportions of perforated pattern and the shape of the pattern. All of the perforated metal sheets have different dimensional openings. Visibility through a metal is sometimes calculated in percentage, different size openings, create different transparency through metal. To be sure of how transparent my metal sheet should be before I made my or-
I made a laser cut in thick paper and I also printed squared patterns on A3 paper. I chose to work nearly with 50 percent transparency for my perforated metal sheet. Also I chose intentionally to work with square openings for the perforated metal sheet and not round or any other patterns. That because the pavement on Bysistorget is made with squared concrete plates and I logically connected the new design to the floor of Bysistorget by imitating it.

Through my redesign I wanted to give citizens opportunity to see existing things differently. More or less familiar water fountains in new light. To add extra layer of design language, I believe that it will be rediscovered. Here I am almost hacking the existing design and the space with my new design on Bysistorget. What will citizens discover in my design? Hopefully they will discover the fountain that has been standing there unnoticed.

My aim with a design was to help the fountain to be visible in streets and to highlight them with visible color and vegetation. Vegetation is symbolical and has a function of micro scale air filtration, which cleans polluted air that is caused by vehicles which transport water bottles in goods stores. I built an object that would enclose the existing fountain in perforated steel. Important aspects of a new design around a fountain is that it does not hinder the fountain to function and be used by citizens. I Believe the design would help the fountain to be seen, recognized and used by citizens, which might not be noticed otherwise.
MOIRE PATTERN

While I was working with perforated metal I discovered interesting perceptual effect that is called “Moire Pattern.” And before I got familiar to its effects, I felt that the shimmering effect of the Moire was alike to water shimmering. Thin multiple patterns are giving a vibration of light. My observations and intuitions were promising when I read about the moire pattern. Moire is a type of textile, traditionally of a silk, with rippled (series of waves on a surface) watered appearance. –Moire- watered textile is made by pressing two layers of the textile when wet. “Imperfect spacing of the threads creates a characteristic pattern which remains after the fabric dries”. When I finished the metal structure around the fountain I continued researching and developing the idea of Moire effect.

I realized that one of my first interests towards Moire effect came from my own sketch, more precisely from the illustration of human silhouettes overlapped together when drinking water from the existing water fountain. I made prints with different patterns on transparent plastic paper, and overlapped them to see how Moire effect is created with different patterns. After few experiments I realized that the effect of the Moire works like a magnifier of a pattern. It decreases or increases the size of a singular pattern. I realized that I have to ripple both plastic papers, nearly as surface of water. Now by doing so the two layers of offset rippled paper patterns do not let the singular pattern to be visible. Rippled surface distorts the patterns and dissolves them like water. As more rippled and different curvature has both surfaces, the more patterns transform into wave of effects.
MODEL OF BYSISTOGET – UNDERGROUND WATER PIPES

At the same time when I discovered Moire effect I made a model of Bysistorget, and specifically the space that I chose near the existing drinking fountain on the square. I made a model in scale 1/30 that shows underground pipes, under Bysistorget. I did this model because I was fascinated about underwater pipes that are not visible to us humans and wanted to expose them. The water infrastructure that is alike blood vessels in humans, moves water under us in the ground without us noticing it. The only object that is connected to underground pipes is a drinking fountain. Observations of the model and especially the pipes that are visible through perforated ground intrigued me. The process became a new puzzle that I intuitively felt was promising. I considered that exposed pipes and perforated metal would have an interesting aesthetical relation. In contrast to the second skin prototype the new design idea for a new drinking fountain was to cover water pipes in a new skin, in perforated metal.

Photo of abstract model. Exposed water pipes are visible through openings in pavement surface. The model clearly shows juxtaposition of two different elements. The importance of the model is in its depth and layers.
MIRROR-INFORMATIVE ART INSTALLATION

I am writing about this part of the process because it is a link and an important element for the new fountain design later in my project. Form and conceptual shapes, location and placement without this chapter would not result in a new drinking fountain.

In order to contextualize the project and work within a certain space, I chose Bysistorget, a square located in southern Stockholm, and which I have written about above. When I visited my chosen context I decided to work with informative art. I imagined a wide, high and broad mirror in a spaces next to an existing fountain. The mirror would not be flat but with shapes like waves in the water. The idea of the installation was to create a reflection of behaviors that could take place in the square and information about water crisis and water statistics and also - and most importantly - information about the absence of drinking water in Stockholm. The installation would serve as a platform where people can photograph themselves and spread the photographs of the installation and hopefully the content and information about water. Here I thought of the internet as a phenomenon of networking, alike to the river water connectivity or human blood vessels. I also want to emphasize that in this degree project I thought to build and make a full scale model. I made photographic and physical sketches related to this idea, the idea about mirrors in a public context. Later in this part of the project, I realized that the idea would be difficult to realize in a full scale model. Nevertheless, the idea gained importance in the project, as mentioned above. The idea of a mirror in the public space made me seek forms to create the new drinking fountain. The concept of a mirror turned out to be a part of the puzzle that could later develop the design proposal in this project.
THE NEW DRINKING FOUNTAIN IN BYSISTORGET

The general idea, how the new fountain would stand in Bysistorget, and what shapes it has, is a result of influences that I received in the working process. Different ideas and perspectives that emerged during the process now came together.

The mirror (informative art) in Bysistorget according to me, was placed in logical order, that was appropriate in that context. The new fountain replaces the large informative mirror in the same location. I was present at the square and learned human movement dynamics and patterns. The location of the fountain is on a periphery of the square in the middle where people walk, cyclist cycle, cars move and a space that is also seen from another side of a street. Rectangular surface of the new fountain is located in open space in the middle of the two buildings. The street Hornsgatan is one of the main long streets on south of Stockholm. The movement has a direction in both sides, to left and right, to east and west. Long street spans from Slussen to Hornstull. The object placed on that street in-between buildings can not resist the force of buildings from both sides and flatten. Also the street direction, prolonged street Hornsgatan is affecting the spatial object to flatten. My informative art idea with the mirror was flat because of my spatial observations of Bysistorget.
The shape of the new fountain stays almost the same but the materiality differs. The new drinking fountain is made from two rectangular layers of perforated metal, 3 meters high and 2.2 meters wide. Two layers of perforated metals are offset from each other to create Moire effect - water effect. Inside the fountain there are pipes of water and they represent the “veins of life” the observations I made with natural phenomenon. The pipes are visible through perforated metal and people can access water from the openings that are in vertical wall.

Water pipes inside the metal shell symbolically represent, blood arteries.
To be able to drink water from the fountain, the water pipes inside the metal shell are adjusted to different human and animal body heights. I studied human body heights based on age. 3 years old child’s average height is 94 cm and I also made a set up adjustments for a taller person that is up to 2 meters high. I also considered a height of a person that is on a wheelchair, and animals especially dog height. The fountain is made as well as for a cyclist, elderly and people can fill up empty bottle if necessary.

Human height constitutes the heights of the pipes inside the fountain. Different bodies can have easy access to water.
To make the fountain exciting and playful I want to suggest digital sensorial mechanism installed on the fountain, which automatically makes water to emerge when person approaches the opening. Sensorial openings would receive signals from a human hand-movement and consequently create an interactive human body interplay on a surface of the fountain, which is in its turn curvy and stands as metaphor for water surface. To access water manually such as with tap, installed on the water pipes, could also be an option. I am not competent in technical specifications considering water, which are strictly technical. In my opinion technical questions should be negotiated with water specialist and engineers. There are eight water tubes inside the fountain in total. Each side of the fountain has four openings for the water access. For the safety and hygienic reasons, water pipes are well hidden inside the metal shell, to restrict contact with running water.
WATER ILLUSION ON THE DRINKING FOUNTAIN

The fountain seen from different angles has various visual appearance of water illusion, mimicking unpredictable movement of water waves in nature. The expression of the fountain face, changes depending where an observer is located in relation to the fountain. Human body movement in relation to the fountain is fundamental. In every day life, both human and water are in constant movement. In real space-time, when a human body moves and has an eye contact with the fountain, even with a slight movement and relocation of the body, water wave effect is activated on the fountain. There is a constant dialogue between the human and the fountain. When human moves, the fountain do as well. It is impossible to capture the potential of the fountain’s visual effects in photos. Fragmented images appear static and can not communicate the necessary information that is characteristic to continuous water flow.

*Model of the fountain in aluminium material 1/10 scale.*

*The fountain seen from different angles, changes appearance.*
REFLECTIONS

Close study of the existing fountains leads me to uncover the failure of the existing fountains. The fountain design is limited and does not fulfils its potential. They do little to help and overcome the problem of environmental damage made by commercial water. Secondly the exploration of water fountains thought me much about a city. And generally working outdoor conditions, made me learn and reflect about public spaces and its organizational elements. It strengthened my interest towards urbanism, functions of a city, and human relation to a city. My map of spatial cognition and human behaviour in public realm broadened.

I also have learned that people's opinions are valuable information and almost like tools to help to materialise ideas based on them. The exercise with the second skin design in deed helped to make the fountain in Bysistorget visible. And even few tried to interact and open the water to see if the fountain was working. But visibility of the fountain in my opinion was obscured by the pink perforated metal. In that case the fountain might not be clearly visible, to be recognized by citizens, if the citizens did not approach the fountain in close distance.

My intentions to harvest rain water strengthened my believe that I as an interior architect should anticipate environmental friendly architecture, and respect nature. I learned how rain water is reused in architecture and its positive environmental potentials. We should try to reflect how we live today and acknowledge the impact we do to our environment. Our challenges are to find ways, to reuse recourses and make design pleasant with limited amount of materials. These are the future challenges.

The idea to create the new drinking fountain emerged very late in the process. Within a little time frame I made a hypothetically new functional drinking fountain. To build the fountain in real scale, is my artistic interest. Sadly, I did not have the opportunity to build it and test it. Important and interesting challenges will emerge if the fountain will be built in real scale. Material dimensions will change and construction methods as well. The choice of metal as a material for the fountain made me realise differences in weak and durable materials. The strength of metal would probably keep the fountain safe in outdoor environment, regardless its soft surface appearance. How will it age? When I ask my self this question, I think of many different aspects. Firstly, I think of a patina, that will emerge with time, by water spill on a metal surface. This makes me to think of which metal material would be relevant. After research, I realised that stainless steel would be a good choice. But stainless steel might have high sun light reflectivity and the fountain facing south on Bysistorget will receive minimum 4 hours sun during summer day. But as the surface of the fountain is perforated and has 50 to 40 percent surface consistency, reflection on the fountain surface should reduce to half. The fountain surface also could be sanded to minimize reflectivity on the surface. And the fountain in general could be maintained and renewed after a certain time in service, by sanding the surface. Technical features, such as the system that makes the water to run and the water derange must be consulted with water specialists. Human interaction with the fountain and water access should not create complication in my opinion. The proposed location and the
new drinking fountain should work well and generate citizens to use free water and come together in space. Since Sweden has a cold climate the water could be turned off in winter but in warmer season, the function of the fountain would make citizens happy with fresh water and save climate. Overall I am satisfied with the project and looking forward seeing my hypothetical drinking fountain to be standing where it should belong, in the people’s service on Bysistorget. It is my aim to try to convince authorities to build the fountain.
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