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Memories of the Future: Creating Stories in the Imagospheric Plenitude

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Abstract—This research paper deals with new methods of representing the urban and cultural history. Tallinn (Estonia) has rich past of urban fabric. It is relatively well investigated and documented in visual form by Prof. Rein Zobel. We are looking for the new means of presenting the research done and also updating it with current events. As urban fabric is the backdrop of cultural and political events, the mere documenting of these processes create new interpretations that we call multidirectional stories.

Keywords - urban history; imagosphere; digital platform; multi-directional stories; digital toolbox

I. INTRODUCTION

In urban sphere everything is artificial; everything has a clear cause and effect relation. Not a single stone, column, brick, pavement tile etc. has received its position without premeditated and pre-planned human decision. We can zoom into the smallest details and connect them to the larger system of historical sequences. Thus everything in a city could be easily planned, controlled and executed. Paradoxically even the best laid master plans and architectural decisions never get realised fully and in most cases the urbanity transforms to chaos of its own liking.

We can describe this chaos with medieval modus of *anagogicus mos*. The chaos from the smallest elements of matter can be traced to the highest of supreme thoughts of design in the city. Every element has its direct relation between matter and mind, transforming the whole history of urban development into the chaos of meanings. Each and every element participates in this *choros* as meaningful. Suddenly, like a lightening, an order emerges among the chaos of meanings and a place (a street, a quarter, a city, a region) that obtains meaning of a higher rank. People, sometimes the whole mankind, value that emerged symphonic meaning and the space that embodies it, gets galvanised under the heritage laws. Then it cannot be changed any more and the living city becomes a museum, sometimes a mummy. Being there, can we feel this *choros* of becoming of the space.

The existential participation – being there – despite of its powerful and unique character has its limitations. Firstly the

experience is shaped by our knowledge and fantasy. The imagination blends and orders the empty gaps of the experience. Very often we stand on a street or a square and wonder what these stones have seen in uncountable days and nights being part of this particular city. Their very presence directs our thoughts to the past as well as to the future. But soon this experience becomes a memory and fades into the past of our mind. Secondly the experience does not cover the structure or the order within the genesis of this particular place. Only hints and sometimes traces of the past can be observed and that usually also means the experienced and trained eye is eager to look for them. Large public is deprived of the chance to deepen into the genesis of the place.

II. LEAGACY OF PROF. REIN ZOBEL

We propose to investigate how the memories of the past give a possibility to understand the urban development in a more comprehensive way. These memories can be brought together to enrich the experience of a city. Memories of the past also interpret and evaluate the space, bring forward the multitude of meanings hidden in this particular space. Memories of the past have also different meanings to the different viewers, thus creating the manifold of possible meanings for the city.

In case of medieval Tallinn (historical capital of Estonia) we have a research of late Professor Emeritus Rein Zobel. His long and fruitful career was dedicated to unravel the early development of Tallinn since the first stones were laid in its walls and streets. Zobel has published several books on the urban design and fortifications of Tallinn. They have been available only to the small number of Estonian readers. They also only publish a fraction of the graphic archives of Zobel. With the book *Tallinn (Reval) in the Middle Ages. Town Building in the 13. – 14. Centuries* in 2001, the advanced step was taken of synthesizing the long-gathered knowledge and data into a unified system. This book opened a new layer for understanding in a coherent way how Tallinn developed in all the domains of urban design. It explained on several levels, how the city operated and what was the structure for the building fabric in the years to come.

The tool for understanding the urban development was advanced by Zobel since 1964, with the help of geologists Künnapuu and Eesmaa. It was an archive of geological bores as well as archaeological and technical excavations in Tallinn old city. The existence of more than 1100 vertical profiles in precisely documented locations was a vast resource. This helped Zobel to develop a new research method – historic and topographic reconstruction. The vertical profiles were necessary to describe the once existing surface, sea level, landscape, roads and other topographic circumstances. With the calculation of post-glacier unloading (about 2 mm per year for Tallinn) it was possible to describe the topography of the main natural elements before buildings were started. This meant that the virgin landscape was possible to reconstruct to the details. All this assisted the understanding of the dynamic changes in urban development and helped to explain the formerly unknown reasons for several structural elements within the city [1]; [2]; [3]. The towers, gates, moat, walls and other fortification elements were reconstructed in hundreds of drawings in their different development phases. This has remained largely unpublished.

With the help of original topography and historical archive research Zobel created several development maps of Tallinn. Each of these was conceptually a section of Tallinn's space-time continuum. These reconstructions with the actual historical maps of the city create a window into the past. We can imagine this as a three-dimensional matrix. The topographic coordinates specify the space and timeline of historical maps specifies the history. All the possible memories of the past are locked to their exact place through three coordinates. Approaching this matrix creates the clouds of memories of the past in a presentable form. These can be engravings, paintings, texts, reconstruction drawings, photographs, music etc. – anything having an audio-visual form that can be presented. We discussed with Zobel several times how would it be possible to illustrate the architectural development in visual form that would complement the books. Now it seems the digital technology has reached to the level that this could be possible.

To test the idea we chose two cases: one emphasizing spatial axis and the other temporal axis. These were chosen because the historical knowledge predicted these places to be active and full of memories. Both of them have played different roles in public life and both of them have been in keen focus of political establishment of the time.

III. EXCAVATING IMAGES, LIBERTY SQUARE

Liberty Square is situated on the border of Medieval and Modern city. Its central position and relative openness has made it a perfect place for formal illustration of power. All the governments in the history of Estonia have taken care to make their presence on this square.

The most simple and clear ordering device for the public space is a military presence. The armed or seemingly armed

orderly stand or march of uniformly dressed men (and sometimes women) is a undisputable argument. Scanning through the photos of parades with dates attached to them make visible how the space has been colonised by political and hence military will and power. The change of arms, uniforms and especially helmets with their distinct form create the atmosphere long disappeared but energetic still. The military order melts together the political will, the means of power and the space it occupies and thus attributes certain meanings and values to the space itself. As large military presentations of meanings are temporary events the space is released of its formal and political meanings between these events. Of course these events have a periodical nature until the power conducting them is intact. So on certain dates the parades take place again and again.

The simple and clear ordering through direct military presence makes a way to more sophisticated devices that try to maintain the political implications of the space in everyday life. The importance and sometimes sacredness of the space is maintained through laws, both written and customary. The laws try to establish which activities (not initiated by the political establishment) are for the public allowed and which are not. This is fulfilled with several means: starting from policing the space up to creating physical obstacles that promote only certain kind of activities.

The very naming of space gives the first intentions of its importance and use. Liberty square has had several names: in Medieval times it was just a way from the city gate called *Roosikrantsi* (*Rosenkrantz*, rosary) reminding us of the dark walkway to the execution place accompanied by the *Hail Mary* prayers; in the 18th century it was called *Uus väljak* (*Novaja Ploshtshad*, New Square) describing its neutral emergence as a square; In the 19th century it was called *Heinaturg* and *Palgiturg* (*Heumarkt*, *Sennoi rōnok*, *Holz- und Heumarkt*, Haymarket and Logmarket) describing its function as a marketplace; In 1910 it was named *Peetri plats* (*Peterplatz*, *Peters-Platz*, *Petrovskaja ploshtshad*, Peter's Sqaure) to commemorate the conquering of Estonia by Peter the Great (in this case from Swedish Empire); In 1923 it was renamed *Vabaduse plats* and in 1933 *Vabaduse väljak* (Liberty Square) describing the liberty and independence of Estonia; In 1941 it was called *Võidu väljak* (*Ploshtshad Pobedō*, Victory Square) describing the occupation of Estonia by Red Army and new soviet government; in 1941 – 1948 it got its previous name back. After that it was changed again to *Võidu väljak* with the effort of erecting the Victory monument that remained undone. Lastly, from the 1989 it was again called *Vabaduse väljak*.

The markedly invisible laws and naming/renaming for the space are also complemented by slogans or billboards but most clearly by monuments and statues. These embody both political will and poetics of art thus trying to maintain the political meanings as something static between the periodical political presence of parades and demonstrations. Liberty Square is particularly rich with competing monuments. In 1911 the Peter's monument was erected and in 1923 it was removed to another location. In 1950 communist revolutionary

Figure 1. Liberty Square in 2010.

Viktor Kingissep's monument was erected and in 1990ties demolished. In 1957 the memorial stone of 1940 "revolution" was added that also disappeared. In 2003 the sculpture of Liberty Clock was added and in 2009 the monument of Victory in the War of Liberty was erected. Both these last monuments present slightly different and competing political concepts of the new Estonian independence.

Presenting all these memories of the past in a digital tool we will enrich our understanding of the public space as well as present the multitude of values, hopes and disappointments embodied in the current moment of this space in Tallinn.

IV. POLITICS AND IMAGOSPHERIC PLENITUDE, BRONZE SOLDIER

The richness of meanings embodied in the memories of the past can be illustrated on the example of Tõnismäe Park. In April 2007 the Estonian government removed the soviet monument called Bronze Soldier to the military cemetery. The defenders of the monument called Night Watch organised a manifestation that became a massive riot that was prolonged for two nights.

I was interested how is it possible that a monument in a particular space taken to another place could cause such a violent event. If the monument remained the same in both locations it must have been the action in the space itself that was considered so important as to initiate riots. It was also interesting to see what was the mechanism of energising people and what meanings could have been attributed to the space inside this process [4]; [5].

In April of 1945 at the end of the Second World War, soviet soldiers and officers were buried in Tõnismäe Park. Their dead bodies were brought together from many different places. The circumstances of their deaths are unclear and in this context they are not important either. It is quite likely that they did not perish in active combat. In May of 1945, a competition was announced for a monument and open space

around it at Tõnismäe, which was to be called Liberators' Square. Initial plans were to erect the monument on Victory Square. The new plan for the monument was prepared according to drawings by architect Arnold Hoffard-Alas and the sculpture was made by Enn Roos in 1947. As Hoffard-Alas's student Tõnu Virve wrote, the conceptual basis of the monument is the portal to the realm of the dead. In 1964, a so-called eternal flame was added to the monument. A short gas flame rose from a small angular pit in the middle of a bronze five-pointed star. The vegetation and arrangement in the green area around the monument has changed several times throughout the course of its existence. Only the evergreen trees have retained their positioning. The liberators' monument was an obligatory urban altar in all Soviet cities.

Regardless of the apparent atheism of soviet power, the square was a highly charged sacred space. This became particularly apparent after the eternal flame was added. The eternal flame is one of the oldest metaphors for remembrance of war in Indo-European culture - "inextinguishable honour" - *kleos aphthiton*. Originally, a composition with five-pointed stars and the eternal flame was on the back of the pylon as a bronze relief. The ritual of the place itself was connected to compulsory political liturgy on the 9th of May and on the 22nd of September (the official date of the end of WW II in the USSR, and the official anniversary of the capture of Tallinn respectively). It is important to understand that the Tõnismäe complex as a "portal to the beyond" with its "guard"; "avenger" or "mourner" in front of it had a clearly iconic structure. But this iconic structure is three-dimensional, it is not just a symbol or sign. Aleksei Lidov writes about this kind of structure in the scared spaces of Byzantium: "The 'paradigm of the flat picture', still dominating in our minds, does not help to establish an adequate perception of the spatial imagery and of hierotopical projects. It seems that crucially significant in this respect is to recognise the spatial nature of iconic imagery as a whole: in Byzantine minds the icon was not merely an object and a flat picture on panel or wall, but a spatial vision emanating from the depiction into the environment in front of it and existing between picture and its beholder" [6].

Figure 2. Bronze Soldier monument after removal to Military Cemetery.

The most characteristic attribute of Byzantine *hierotopia* is also the participation of the experienter in the spatial design. The experienter functions within the image as if he/she were an integrated element of it - a pre-planned component. Spatial experience mixes with descriptions, light, aromas, movements and sounds to form a unitary whole. Furthermore - the experienter, who has collective and personal memory, spiritual experience, and knowledge of the iconic process, participates in the creation of this spatial image. The collective nature of creating a new spatial image must be emphasised at this point. At the same time, this image exists in objective reality as a dynamic structure, changing its elements according to individual experience in procession.

The *hierotopic* build-up of the soviet monument can take us further to archetypal imagos until Ancient Greece: *temenos*, *chora*, *choros aston*, *panta chorei*, *agerigrapto* *Logos*, *anastasis* (and its Latin counterpart *resurgo*), *hetoimasia* and *deësis*. The history, myths, cultural and religious archetypes amalgamate into a presence with trajectories to the past and future.

Here it is also interesting to see how the current media sphere is connected to the events of Tõnismäe. The historical and archetypal amalgamation suddenly becomes a grounding surface of political values. The group calling themselves *Nochnoi Dozor* was the organised activator of the iconic space of the Bronze Soldier. It is quite probable that this name itself is taken from the Timur Bekmambetov's film *Night Watch*. Let us consider what kind of iconography their self-identification was founded on. Bekmambetov's film was completed in 2004 at the *Pervoi Kanal* film studio, which belonged to the Russian government. The film was based on the book of the same name by Sergei Lukjanenko. Both the film and the book proved to be very popular in Russia and abroad. The action of the film takes place in contemporary Moscow, which is a battleground in the struggle between good and evil. The film is made in a certain style of "magical realism"; where everything seems to be everyday and ordinary, yet events themselves are totally unreal. Thus two forces are presented in the form of two political classes that are in constant struggle. They are "simple working folk" who gather during the nights as voluntary militia units to do good. And their opposites - businessmen, profiteers, owners, dealers, Mafiosi, prostitutes - are vampires to be controlled. Identity, which has its own specific known and visual attributes, form and ideology are combined with class hostility.

This line of investigation takes us further to Rembrandt and his painting *Night Watch*, Amsterdam para-military *doelen*, Russian power-structure *Gorsvet* (allusion of *Gorsoviet* - city council), *Gasprom*, *Zabulon* and *Geser*. It is difficult not to see a specific political-technological imagosphere behind this adventure film, which allows today's positive hero to join and identify with the sufferings and mission of the soviet people from the past. Thus by the time of the events at

Figure 3. Cover of Timur Bekmambetov's film *Night Watch*

Tõnismäe, the "awakened" Stalinist icon and liturgy, the poles of good and evil, the discontent of the Russian-speaking population, the personal existential memories of Russians of WW II, etc. had all accumulated and only a spark was needed to ignite the fuse and unfortunately blow up the charge.

Presenting all these memories of the past surely will help us understand the spaces in the city, witness their emotional build-up and dwell in thousands of possible worlds.

I also believe the Tõnismäe events tell us that we have entered a new area which one could call imagospheric world. As we are surrounded by the atmosphere and habit the litosphere, we are now constantly surrounded by imagos. This has always been the case, but never before have the visual taken such a major role in culture and politics. Imagos surround us constantly, but their full meaning has surfaced only now when the different traditional parts of the media sphere have become more dense and amalgamated into one unified field. This unified field prevents us from differentiating media channels any more: news videos, feature films, documentaries, newspapers, television, the web, etc. All these different media, media structures and their genres are compressed into the digital platform and surrounded by a screen, usually of our personal computer. This is a new and powerful environment where "mystifications and brilliant evasions, historical and anti-historical attitudes, bitter intellectualisations and mild mythologies" [7] intermix into an inseparable whole.

In some sense, we have crossed the threshold of a new era. New digital-technological systems are the foundation for this new era of amalgamations and the format of these transformations is its interface - screen. iPhone, iPad, ITablet and MacBook are the perfect examples of this synthesis. It is not just four separate appliances in the form of four objects. It is a digital platform interfaced with four screens of different size dedicated to the same function in different occasions. The digital platform is not "mine", it is composed of several integral parts, which I have no knowledge about, nor the command over. Firstly because it has become impossible for

me as a user to know what am I exactly using. Is it a machine or is it a bundle of licences? The machine has become irrelevant as I can easily transform everything on its hard disc and operative memory into another machine. Secondly it has its own autonomy to update, communicate, initiate and activate software that is nothing but a string of zeros and ones, a protocol guarded by intellectual property laws. Nevertheless the platform of digital-technological amalgamations is presented as visual in the format of the screen.

We ask – can we use the new digital platform to enrich the city, its space and architecture with presenting the imagospheric plenitude of meanings. Can we connect the diverse cultural and religious structures to the presentation of Tallinn city in its space-time continuum? Can we transform the possibilities of memories of the past into the future stories of multidirectional customisation?

V. TECHNOLOGICAL TOOLS AND PLATFORM TO BE USED

From technological standpoint our aim is to build **toolset** and **workflow** to store, organize and present space related historical information. Usability is key feature in this project since target users and audience are architects, historians and wider public. Important part to achieve this is to build short feedback loop [8], [9] and give a full manual control over process to the user. There is no reason to separate design and presentation tools. Number of trends is showing that these two parts are coming closer and closer since there is enough computing power. It is not surprising that word documents are presenting us very similar image on screen as we see on print. In computer interface field it all goes under WYSIWYG (What You See Is What You Get) term. Many 3D software have included lately real time photorealistic rendering to standard packages (Modo 601, 2012, Blender Cycle, 2012, Autodesk 3D Studio max 2011). Great help to achieve this is coming from development of GPU (graphic processing unit) and this computing power can be used alternatively to graphics. Nvidia CUDA [10] platform is widely used among scientists to calculate non-graphical information audio, finance and etc. We would like to integrate these principles into our work as much as possible. Another general principle is coming from Joshua Bloch who stated that all API should follow “Leave it Out, When in Doubt” guideline. In general we would like to build our workflow around two main principles. Having very short and realistic feedback loop and having very small but effective vocabulary.

Main content is **map**, **photo** and **drawing** based material (Fig. 4). Most of this information is not too precise in digital context and there is significant amount of data, which does not have any trace in the real world any more.

Figure 4. Different format of preliminary data

This project needs to deal with very different datasets and to make workflow flexible, we have to divide the project into three different solutions: **map**, **image**, **model**. These solutions are independent, which allows them to be developed or to be used independently. Since they all share spatial dimension it is possible to combine the content along the process. From development perspective we have divided this into three general phases: **organizing**, **data collection** and **delivery**. During organising phase data input workflow is worked out. Aim is to build intuitive (easy to use), scalable (no limits to data input), collaborative (multiple access to same data source) and extensible (raw data can be shared by multiple tools) solution. **Development** phase focuses how to turn content in raw data (for example building on map) into over-laying dataset. Depending on solution type it is different. Delivery phase is the part of the project when final clean-up is done and project can be used by general public. Under project we mean two things: firstly that the content is ready for public use and secondly that the tools and workflows are ready for public use.

We are trying to **integrate** as much exciting technology as possible although it is hard to find software, which has three

dimensions: **time**, **space** (location) and **theme** (content). These are important for organising and design. In case of maps there are some solutions, even Google Earth provides elementary toolset to do that. In case of photos and models it is more difficult.

A. Map solution

During the first phase data is gradually collected and geo-referenced. It has to be associated with necessary space, time attributes can be done in most known GIS platform: ESRI ArcGIS [11] which is commercial product or qGIS [12] which is free alternative and there are many others. For sharing purpose it seem feasible to use mapbox [13]. It is easy to extend and it relies on good infrastructure Amazon web service S3.

Aim of the second phase is to digitalize all raster images with building digital geometry on top of that. One of the key elements is to get dynamic terrain model through which dynamically changeable landscapes can be presented. Similar to previous phase we can do most of the work in widely available GIS platforms. For presentation purpose it is probably important to port information to WebGL or some game engine (Unity3d [14], Unreal engine [15]).

B. Photo solution

First phase, which is data organizing, requires platform which is not on market. Arranging photos according to time and theme is not a complex task and can be done with many different software. There are stand alone general-purpose software like Adobe Bridge [16], or more dedicated software like Verons [17]. There are also web-based tool like Yahoo Flickr [18], Google Picasa [19]. Most of them allow to geo-reference where the images are taken but they do not let you connect features on image and geo-referenced objects on the image. Our aim is to move from picture to picture (Fig. 5) and this software does not provide any solutions to do that. There is another branch of software to generate 3D models out of set of images using (SfM [20], SLAM [21] methods). Most popular ones are 123D Catch [22] (previously known as photofly), Microsoft Photosynth [23] or open source standalone software Visual SfM [24]. These platforms allow us to move from image to image but there is the lack of time information. All time is merged to one single moment. For our purpose it is also not necessary to get 3D model out of images.

Aim of this stage is to build web application to associate images with time dimension, geo-information and feature association. Sometimes we also need to connect images where critical features have changed. For example sometimes the urban fabric between two pictures has changed dramatically

Figure 5. By clicking on designated area on left (marked purple) the new image opens up. Transition between pictures can be 3-dimensional to give better understanding to user

(Fig. 6). We rely mostly on human intuition and knowledge to connect these images. After this stage it is possible to move from image to image. We do not know anything about content in the image yet.

Second phase is concentrating on mapping information on images. Image of the person can be associated with name. It is important to build web application for that project to ground source information. Most important part of information collection is to capture invisible information: name of the person; description of the activity and etc. We are not too interested of capturing visual information. For example name from the logo. There is a possibility of using automated visual object detection and 3D recognition algorithms.

Figure 6. Dramatic time-gap of 80 years

C. Model solutions

During first phase drawings/photos are collected and annotated with time and space information. It is important to work out where different buildings are locating in urban scale. It is very similar to map solution at this point and there might be interesting overlapping. For example ground floor plans can be connected together. At the same time main focus is to organize drawings so that they can be easily used for architectural modelling. All ground level plans are going to be geo-referenced in GIS software. Additional drawings are going to be grouped in folders.

Second phase is 3D modelling. Model is going to be built up out of solid elements (watertight mesh). Elements can be intersected to each other. Every building is going to be developed in separate file. It allows us to manage every individual unit. Bringing them all to one file can be done automatically. Landscape fot model needs to come from map solution terrain model. Final product of this solution is collection of 3D models, which can be presented over period of time.

Figure 7. Modelling historical/existent buildings

We hope the amalgamation of technology with urban and cultural history will bring forward new exciting stories, worth reading and telling.

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