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As heritage professionals, on a daily basis we have to answer such questions as: what is of cultural value, what is authentic, and why do we need to preserve A, but not B? “We can’t stop the world from spinning” and “time has to move on” are phrases often heard from those who oppose any kind of heritage preservation. There are people who say that there are too many monuments but also those who regularly propose new listings. Constant controversy is perhaps the only permanent characteristic of today’s heritage management. And we just have to deal with it: in dialogue with owners and caretakers of monuments and with the general public.

On a micro level, despite all of the honour, owning a national monument always seems burdensome; on the macro level just 0.7% of all buildings in the Estonian building registry are under protection, which is clearly an underestimation of the meaningfulness and eternal value of architecture. Providing numbers often helps: almost everybody would agree that less than 1% as crème de la crème which needs extra care and caution is not “too many monuments”. Recent years have added new listings of 20th century architecture to our registry. In some cases court decisions have been necessary, but on the positive side this has increased public understanding of cultural heritage as a concept applicable to recent creations and not only “true antiques”.

The heritagisation of the second half of the last century also means dealing with “difficult pasts” or difficult heritage: in Estonia’s case this means anything that has to do with the Soviet past. Twenty-six years after regaining independence, we have achieved the distance needed to approach some of the objects with more emphasis on their artistic and aesthetic values rather than their political associations. Fast (real estate) development requires more attention to layers that otherwise would be easily dismissed just because of connection with an undesirable period.

While looking for meaningfulness in the recent past requires heavy conceptualisation and might not find universal appreciation, the more distant past enjoys increasing popularity. Anything to do with archaeology, coins and other metal finds and underwater wrecks draws the attention of both hobby archaeologists and the media. As detectorism has been legal in Estonia since 2011 and the state guarantees rewards for finds of cultural value, recent years have seen an abundance of Viking age and late Iron Age artefacts. Some of them provide information and some raise new questions about our pre-literate past.

Besides archaeology, new technologies offer novel opportunities to interpret the lives and craftsmanship of our predecessors. Research and conservation projects undertaken in Estonian medieval churches, on wood polychromy and art have received international attention and even Europa Nostra nomination. Some examples you’ll find in this book.

But it is not only the high end of cultural heritage that has advanced. The majority of the heritage is not and should not be under government protection or professional monitoring. Public awareness and traditions help to preserve equally well, as the Heritage Conservation Act. The popularity of rural architecture and DIY training courses show the natural interest in everything old. Due to the thriving contemporary design, art and start-up scene, we have come full circle: the controversial past helps to deal with modern challenges in the most productive way.
The aim of legislation has always been to regulate people’s interests and behaviour, and thus it reflects the relevant problems of any given time. The rules which highlight common values also serve as generators of these values, creating a fine correlation between legislation and common values.

The Conservation Act of King Charles XI of Sweden in 1666 was not the earliest heritage protection act in Europe, but was very influential, as the Swedish Kingdom of those days included the present Nordic and Baltic countries (Sweden, Finland, Estonia and parts of Latvia, Germany and Russia). The Act formed the basis of current legislation in Sweden and elsewhere, and it is important because it not only covered the property of the King and the Church, but also the Viking age heritage, folk art and tales, ruins of buildings that were unused, sacred groves and springs etc. The Act regulated the excavations of old graves; it forbade the reuse of ancient monuments as building materials, and the relocation of monuments, etc. Most of the issues covered are still relevant today.

For example, one can see the ties between forbidding excavation of graves except for scientific purposes with the contemporary problem of metal detectorists and the obligation to safeguard valuable items from widespread illicit trade.

The Conservation Act was based on a memorandum by the historian and state antiquary Laurentius Bureus, it was prepared by the secretary of Uppsala University Johan Hadorph and enforced by the Chancellor of the Swedish Realm Magnus Gabriel de la Gardie. The latter was also Chancellor of Uppsala University, the governor of Estonia and the owner of many landed properties in Estonia.

There is little evidence of the implementation of the Conservation Act in the territory of Estonia. Certainly the fact that Sweden lost its overseas territories to Russia less than fifty years later played a role. However, the Swedish act had an indirect influence on later heritage legislation in Estonia.

It was not until the late 19th century that the text of the 1666 act was (re-)discovered in the Baltic provinces. The Baltic-German historians and architects were concerned about the conservation of cultural heritage primarily in the Baltic provinces of the Russian Empire and were involved in the preparation of a Russian conservation act which unfortunately did not go into effect before the Russian Revolution of 1917. They not only studied the contemporary heritage management practices in Europe, the US and even Japan, but also looked for historical models for the new conservation legislation.

Arnold Feuereisen, the city archivist of Tartu and later of Riga, was the first to publish a German translation and commentary on the 1666 Conservation Act in a paper presented at the first meeting of Baltic historians in 1908 and published a year later. He praised the conservation principles of the act, which were still relevant in his time. A few years later, Wilhelm Neumann, the architect, art historian and museum director, again quoted the 1666 act in a paper prepared for the archaeological congress of 1914 as a positive historical example.

Thus the 1666 act entered into circulation not only as a historical document but as an example for creating new conservation legislation. The first proper inventories of monuments in the Baltic provinces were only drawn up at this time, but for these there were more recent examples from Germany and elsewhere than the Swedish ones from the 17th century.
The first Estonian Conservation Act, in 1925, starts with a list of different types of monuments to be protected. What is striking is the fact that this list very closely resembles the 1666 act and its appendices. The next Conservation Act, in 1936, repeats the list with minor changes. Whether this is a mere coincidence has yet to be determined.

When the current conservation legislation of Estonia was compiled in the early 1990s, the pre-war acts were often quoted and they can still be traced in the Conservation Act of 2002, which is in force at the moment. Thus it can be claimed that the 1666 act still has some relevance in heritage protection in today’s Estonia.

To commemorate the 350th anniversary of the Conservation Act, the international conference Historical Perspective on Heritage Legislation: Balance between Laws and Values was organised in Tallinn in October 2016. The organisers of the conference were ICOMOS Estonia, ICOMOS International Scientific Committee on Legal, Administrative and Financial Issues and the Nordic-Baltic ICOMOS committees in cooperation with the Tallinn Urban Planning Department, Estonian Academy of Arts and National Heritage Board, and with the help of the Ministry of Culture and Nordic Council of Ministers. The participants came from 19 different countries, including Japan, Singapore and Argentina, to name just the most distant ones. Over two days, 21 presentations were given discussing various aspects and practices of heritage legislation, with the main emphasis on common values. The papers of the conference will be published and therefore will not be described here at length.

However, an issue which came up during the conference is worth mentioning. In the 1666 act, “royal disgrace” was the highest punishment for breaking this law. Today, when heritage is defined as a values-based process rather than something fixed, it is difficult to impose effective rules and punishments. Therefore, it seems that such intangible means as raising public awareness, including “public disgrace”, might still be the most effective way of protecting cultural heritage.
One of the most important events in the heritage preservation history of Estonia is undoubtedly the creation of the conservation area of the Old Town of Tallinn in 1966. Five years earlier the first Heritage Conservation Act in the Soviet Union was adopted in the Estonian SSR and formed a solid basis for the protection of cultural heritage for decades.

The single-minded people behind the successful formation of the conservation area, certainly an idealistic plan at the time, were the art historian Helmi Üprus, the conservation architect Rein Zobel, the civil engineer, historian and head of the later Tallinn Cultural Heritage Department Rasmus Kangropool and the city architect of Tallinn Dmitri Bruns.

Although the main principles of the statutes of the conservation area have remained unchanged since 1966, the different versions of the statutes display interesting differences which reflect both the problems and value judgements of given periods. The statutes were renewed in 1995, 1999 and 2003.

In 1995, the conservation area was enlarged to include areas outside the historic town wall and visible later fortifications. A buffer zone around the conservation area was also established. In 1999, long-distance view sectors and corridors were added to the buffer zone, a decision which has proven to be both clever and well-justified by international comparison.

In 1997, the Old Town of Tallinn was inscribed on the UNESCO World Cultural and Natural Heritage List. The area designated for the UNESCO site was smaller than the local conservation area, including the medieval intramural area and only some parts of the 17th century bastions because it was doubted at the time whether the later layers would have outstanding universal value by UNESCO standards. The boundaries of the UNESCO site were enlarged to encompass the whole conservation area in 2008.

The conservation area was established twenty-two years after the bombing of Tallinn in March 1944, the levelling of the ruins and new constructions in different parts of the Old Town, and the paving of the streets with asphalt. Contrary to the present situation, the Old Town was overcrowded in the 1960s: around 15 000 people (i.e. about three times more than today) lived there because of the housing shortage of the post-WW2 years and the number decreased very slowly. Therefore the first aim of the conservation area was to preserve the historic architectural traditions, building materials, details etc. Nowadays it seems obvious but at that time it would have been an impossible task for the heritage sector without the force of a national decree. The statutes invoked the obligation of investigation, documentation, proper architectural design and written consent by the heritage authorities for any actions taken in the Old Town.

The statutes also provided for “the gradual demolition of technically and historically valueless and unsightly structures to decrease the density of urban fabric.” This clause did not just refer to sheds and modest outbuildings. In the general enthusiasm for restoring the medieval city, many later buildings as well as houses leaning against the town wall were demolished. Rein Zobel went as far as to suggest the demolition of all buildings built on top of the former earthen fortification save for theatres and a school. The reconstruction plan for the inner city dating from 1969 stipulated the demolition of 350 valueless buildings, i.e. 23% of the total number of buildings, and an increase in vegetation in the bastion area of the Old Town. A considerable number of these buildings were actually torn down, and some were spared only due to the slow pace of the work.

The statutes urged the gradual elimination of “businesses and offices which were unsuitable in character for the Old Town”, meaning industrial plants, depots and especially transport intensive service firms. This was a real problem at the time because there were many factories located in the Old Town. Only continuous conservation of historic buildings and the realisation of the tourism potential made these enterprises leave the Old Town.

The statutes forbade any new construction in the Old Town, whether new buildings or additions to existing buildings, to prevent an increase in urban density. Exceptions could be made only with special consent. This clause was successful: after 1966 just a handful of new buildings were erected. In 1995, with an addition to the statutes special consent could be sought for constructions to gradually restore the parts of buildings lost in WW2. In the next two versions of the statutes, this clause was reworded, making it significant lost parts that could be reconstructed. In 2003, an explanation was added that this provision concerned only buildings which had existed in 1944. It has to be mentioned that the last amendment was preceded by major development pressure to build housing in Harju and Aida streets.
In 1966, attention was even paid to economic sustainability: all tenants had to pay at first 20 kopeks and later 40 kopeks extra rent per square metre to provide funds for the conservation of their buildings. This extra rent, collected by the Tallinn Architectural Monuments Inspection, yielded around 400 000 roubles per year and gave the inspection a certain independence in organising conservation work in the Old Town. This system was abolished after Estonia regained independence and private property was restored.

Paradoxically this has created a topsy-turvy situation: in the Soviet times people were convinced through this extra tax that one had to pay more for property in a valuable historic environment even if the living conditions were much worse than in other parts of the city. Today, when the location offers real economic gain, the owners expect conservation work to be done with public money.

Unfortunately, restrictions and lack of money are the keywords with which the heritage authorities are associated; preservation of values, experience and help are much less known to the wider public. To mark the anniversary of the conservation area and to stress the role of heritage conservation specialists in society, the book *Old Town, my favourite!* was published. It is an exciting story told by Boris Dubovik, the head of the Tallinn Cultural Heritage Department, about how decisions have been made, who has made them and what has characterised the relationship with owners of listed buildings over many decades.

(1) Conservation work in the Old Town was usually undertaken in connection with some public events or anniversaries. For example, the work in Vaimu Street and 23 Lai Street was dedicated to the song festival of 1960 and the 20th anniversary of the Estonian SSR. Photo by Boris Murd, 1960. Estonian Film Archives (2) The Tallinn city designer Valmi Kask, the deputy city architect Henn Roopal and the architect Anne Bremse around a model of the restored Tallinn inner city in 1977. Photo by Viktor Rudko. Estonian Film Archives (3) Tallinn Old Town Days has been one of the main annual events for involvement of the public with heritage conservation. Flower girls at the Old Town Days in 1986. Photo from the Estonian Film Archives
The year 2013 became the year of cultural heritage in Estonia in a campaign to draw society’s attention to heritage. The Ministry of Culture had curated thematic years to facilitate broader introduction of architecture, design, museums, theatre, reading and the art of film in the past. It was clear the subject would have to be as broad-based as possible that year, not something for the inner circle, but first and foremost a campaign for the public. We also decided not to limit ourselves to heritage conservation, but to look at heritage in a broader sense. While Estonian society most definitely is not anti-heritage, attitudes toward heritage have become more indifferent in recent decades, as the need to contrast with outsiders has disappeared. Deepening bureaucratisation of state departments and the transaction of affairs are fortunately compensated for by a new wave of citizens’ associations, mostly urban, regional and village societies. Paradoxically, the thematic year was also helped by local government council elections as concurrent horse-trading and over-amplification of short-term gain resulted in more respectful attitudes toward permanent national values. The goal of the year was to offer as many people as possible the opportunity to experience the “touch of heritage”, to take different topics to different target groups. This called for various event proposals, but above all the chance not only to partake, but to organise. One of the most important tasks of the Heritage Year’s small team was to make connections in order to bring possible participants together, encourage them where necessary, and support them where possible. We made efforts to realise unfulfilled dreams and leave behind both a spiritual and physical mark. We received help from societies, schools, theatres, museums, cultural workers, conservationists and many others. In summary, the year saw hundreds of events, from seminars, exhibitions, parties, workshops and performances to the unveiling of informative billboards. Their effect is difficult to quantify. How does one compare the imposing Baltic States’ Cultural Heritage Forum V to, for example, the Lümanda basic school dedicating the entire year’s hobby activities to heritage? How do you compare the song festival of Estonian Swedes, bringing together both shores of the Baltic Sea, to the creation and installation of an information board on the narrow gauge railway? While their scopes differ, their effects are equally significant. Besides big and small events, the message was echoed by both national and local press, as well as by constant and predominantly positive social media attention. In summing up, it is sensible to go back to the beginning, recall what we planned and hoped for, and look at what materialised. Also it’s important to take a critical look at what was not accomplished. It was the thematic year’s goal that people would understand the following:

- no heritage without heirs;
- cultural heritage is the foundation of national identity;
- everyone is responsible for preserving cultural heritage;
- cultural heritage is an element of everyday life to be found everywhere;
- today’s creation is tomorrow’s heritage;
- the mission of heritage conservation is to shape the knowledge of history and cultural space;
- cultural heritage is a supporting pillar of the economy;
- heritage conservation is sustainable development.

NO HERITAGE WITHOUT HEIRS

“Heirs” ties into the connection between generations, the passing of achievements, creation, knowledge and beliefs to the young. We teamed up with children’s magazine Täheke to reach the youngest children. Our hearts warmed when we read letters sent in as part of ‘The oldest thing in my home’ contest in which children described how they went to their grandparents to ask about old things in the family and their stories about those things. Entire classes took part and discussed the items, their history and meaning before sending in the pictures. The collection of photographs we amassed has great value, and we hope someone will find the time to analyse what was the oldest thing in Estonian families in 2013. The year’s greatest venture turned out to be the project “Tracks that lead to heritage”, in which the passenger carrier Edelraudtee gave us empty seats on board their trains for half a year. The unexpected opportunity was quite an ordeal for the organisers: how to find partners and make them cooperate to fill an entire day with an exciting programme, come up with the simplest possible booking centre that could be run using volunteers and, what proved the most difficult task, reach schools, i.e. students and teachers. Things did not go as smoothly as we would have liked at first, which is why it took us the entire month of March to launch the project. Despite the late start, the project proved so successful that the final weeks of both the spring and fall seasons saw trains filled to the brim with children. For many of them (there were 6,709 total...
(1) Goods shed in South Estonia. Photos by Margus Palu (2) Construction of a barn in Kihelkonna parish, Saaremaa
participants), it was not only the first, and hopefully an addictive, trip to a museum, but also their first time riding a train. Also there was the joy of discovery, as places like Kohila, Võhma, Olustvere and Kilti are unknown even to a lot of Estonian adults. Narva is another destination where students are not likely to find themselves. During Tallinn’s day, around 70 high school students of the capital took 650 younger students out for tours of the Old Town. Hopefully the event, organised by the Tallinn Department of Culture, will not be a one-off but will be repeated, not only in Tallinn but, with help from the Estonian National Museum’s guides’ school, elsewhere in Estonia. It is fitting at this point to introduce the ‘Estonian Cultural History Study Materials’, which came out of years of work by the Estonian History and Social Studies Teachers’ Society, offering inspiration for new treks. The society also dedicated the topic of this year’s historical research paper contest, “Heritage is Inheritance”, which was nominated for a presidential reward, to the heritage year. The Supreme Court tied the topics of its annual case contest to heritage by having students look at copyright law through the prism of folk singing, and public interest deliberation through protection of cross trees.

CULTURAL HERITAGE IS THE FOUNDATION OF NATIONAL IDENTITY

The Heritage Year had the honour of partnering with Republic of Estonia 95 to support preparations for the celebration of Estonia’s 100th anniversary in 2018. It is symbolic that it was the heritage year that saw the laying of the cornerstone of the new building of the Estonian National Museum, which has since opened its doors. The year marked several anniversaries: 25 years of the Tartu Heritage Conservation Days, the United Plenum of Creative Unions, restoration of the tradition of tribal days etc. Valuing one’s ancestors and what they have accomplished forms a part of becoming a full citizen, which is why we invited students to talk about their native place’s luminaries, light candles on their graves, and talk about what everyone could do to honour their country and its history. We also prioritised promoting a broader world-view in the “Finno-Ugrian Day in the Cafeteria” project to support the traditional Finno-Ugrian Days: a chance to use cooking to help explain the meaning of language and culture, why we should take an interest in our tribal kin, and the opportunities and obligations of a state and people.

EVERYONE IS RESPONSIBLE FOR PRESERVING CULTURAL HERITAGE

To prove that heritage conservation is not just for officials, we invited people from different walks of life to serve as voluntary heritage envoys to highlight the role of heritage through their work and activities, both in everyday life and as a national value throughout the year. There were 12 official envoys: politicians, journalists, writers, poets, musicians etc. The contributions and messages of the envoys varied. Most of them were highly dedicated to their new responsibility and were always involved either with the Heritage Rally, meetings in schools or conferences. Having thousands of people work to fix up local monuments throughout the year seemed quite natural. However, a great number of events could only take place with the help of volunteers. Involving unemployed persons whom the Estonian Unemployment Insurance Fund was looking to place as volunteers was an original experience, and one definitely deserving of being repeated in future. Lending a hand to heritage conservation and museums helped several volunteers find temporary and even permanent employment. The Heritage Year also expanded on its network of partners, both among different participants and inside existing networks. Among corresponding ventures with the biggest scope was “24 Hours in the Community Centre”, during which almost all Estonian community centres opened their doors for one weekend.

CULTURAL HERITAGE IS AN ELEMENT OF EVERYDAY LIFE TO BE FOUND EVERYWHERE

Heritage conservation has long stopped being only about the palaces and fortresses of rulers and today pays equal attention to elements of everyday history. We also cannot limit ourselves to objects conserved as national monuments. More and more attention needs to be paid to values that are close to people. One of the goals of the year was therefore to look beyond major events in major cities and reach out to small towns and even villages. The town of Viljandi was chosen as the focal point of the Heritage Year. The town’s annual folk music festival and the Estonian Traditional Music Centre need no introduction, but for many it’s unclear that heritage can be a profession and not just an interest, as well as the fact that Viljandi is the home of heritage education. It is great that Viljandi elected a heritage professional for mayor at the end of the year. The message of the Heritage Year reached other places in Estonia largely thanks to local leaders, but also through the Estonian Open Air Museum’s Rural Architecture Centre’s Heritage Rally. The latter made sure heritage envoys, heritage conservationists, restorers, writers, and experts of Estonian cuisine, handicrafts and other disciplines reached all counties at least once. Hosts everywhere added their contributions to the kaleidoscope of heritage.

TODAY’S CREATION IS TOMORROW’S HERITAGE

Heritage is formed of things that have survived the decay of time or that speak to us from the past. Heritage is constantly changing as it is interpreted differently in different times and circumstances. The things we prioritise and do well today will constitute heritage in the future. Creation is based on experience and knowledge. The young designer Mattis Tani’s combination of a machine-readable code and a traditional Estonian woven belt was picked as the Heritage Year’s logo. The author says that
(3) XXV Song and XVIII Dance Festival procession in Tallinn, 2009. Photo by Triin Männik

(4) Old dugout boat in Soomaa. Photo by Margus Palu
patterns woven into the colourful traditional belts can be interpreted as a code the Estonian people have used to communicate sempiternal values for centuries. A message woven into a belt reflects the perfect connection between intangible and tangible heritage. The Estonian National Commission for UNESCO trained art teachers to work together on the student research paper-based art project “Living, Exciting, and Colourful Intellectual Heritage”. The project culminated in a common experiences day and art exhibition in Viljandi.

THE MISSION OF HERITAGE CONSERVATION IS TO SHAPE THE KNOWLEDGE OF HISTORY AND CULTURAL SPACE
The idea of conserving monuments goes far beyond the preservation and restoration of objects for future generations. Every decision of what to conserve, and what not to, shapes the national memory of cultural heritage, as well as its environment. A good example with which to counter the criticism that the protection of signs of the past hinders the present’s opportunities to shape its own living environment lies in the conservation areas of Estonia’s historical cities, which just celebrated their 40th anniversary. Four decades is a long enough time to reach the conclusion that without these “hindrances” we would be less fortunate today, both in terms of spirit of place and the environment. More recent values represented by the Soviet architecture built alongside rather than replacing the old were the focus at the Tallinn Architecture Biennial. To communicate knowledge and create connections, an online quiz was organised on the Day of the Perpetuation of Freedom (27 March 2013); the 22,000 participants made it the year’s largest event.

CULTURAL HISTORY IS A SUPPORTING Pillar of the Economy
Not just the tourism industry, but many other economic sectors depend on our abundant heritage. Unfortunately, its existence and bounty are taken for granted at the state level. A finance ministry official’s statement that managing cultural heritage does not make financial sense for the state, in the 6 November issue of the local newspaper Raplamaa Sõnumid, had a very sobering effect on the general atmosphere of heritage celebration. And yet a large part of tourism does not revolve around waspish buildings, but around stories of places and events. For example, the Heritage Year worked with heritage conservationists, museums and Nature’s Omnibus to help showcase 20th century military heritage. Just as we can triumphantly say today that we owe the survival of Tallinn’s Old Town and the former ‘decay districts’ of the culturally valuable parts of the capital to our one-time poverty, it is to be hoped we will be able to one day “market” our military heritage and other important aspects thanks to having had enough sense to conserve them at the right time.

HERITAGE CONSERVATION IS SUSTAINABLE DEVELOPMENT
The more we see things we’ve inherited as treasures and the more sensible we can be in managing them, the wealthier we are. We tried throughout the year to address topics with broader and longer effects, or that had been neglected, to offer the joy of discovery of simple things. We looked for ways to work with nature conservationists, lumberjacks, libraries, logistics companies, students, media channels, artists, designers, philatelists, cooks and confectioners. Cooperation was also the centrepiece of a special issue of the culture magazine Akadeemia. The Heritage Year’s budget of €191,735 was distributed between the Baltic Sea States’ Cultural Heritage Forum and 37 applicants to realise ideas that would last longer than a year. Sustainable thinking has sent us looking for ways to make sure that actions wouldn’t be one-off ventures. Agreements to hand down projects were made with the Government Office, Estonian Museum Society, the National Heritage Board and many others.

IN CLOSING
Preparing for the Heritage Year, we gave a lot of thought to how to translate the event’s motto into English. “No heritage without heirs” was born quickly and approved right away. Finding corresponding sayings in Estonian dialects proved far trickier. However, we did manage to find some:

- Tracks are left where people walk
- Better one’s chintz shirt than a borrowed silk shirt (Saare)
- Tomorrow cannot be left in the hands of people not yet born (Hiiu)
- A tune learned young will carry when old
- An old tune and a young voice a song will make
- What you don’t learn in the morning, you won’t know in the evening
- A foal must learn a horse’s ploughing
- An old person’s backroom advice is worth more than a young one’s fieldwork (Mulgi)
- One needs an heir to leave an inheritance (Lüganuse)
- It’s easy to build a fire with old kindling (Võru)
Those who have visited the Harilaid peninsula on the north-western coast of Saaremaa and hiked to its farthest point have, to their surprise, noticed a slender slanted lighthouse surrounded by water right on the Kiipsaare nook. The tower was some 100–150 meters removed from the waterline at the time of its construction in 1933 but now stands in 1.5–2 meters of water as a result of changes to the coastline. The purpose of the lighthouse has also changed over time. Once built to aid navigation and warn vessels of the numerous hazards surrounding the peninsula, the tower has been dark since 1992 and lost all significance as a navigational aid in 2009. Today a symbolic final destination of many a hiking trail, the lighthouse is famous for shifting its position due to storm waves and erosion. Some years it is slanted much like the Tower of Pisa, while in others it once again stands upright. The border between the land and sea is always shifting; however, we can best perceive and monitor it in places and situations like these.

COMMON SEA, COMMON CHALLENGES
Different forms of changing maritime and coastal culture served as the main theme of the 5th Baltic Sea Region Cultural Heritage Forum, which took place in Tallinn 18–20 September 2013. Coastal areas are characterised by strong pressure on cultural heritage and the living environment, as well as by a shortage of work and decreasing population on the periphery. The forum dealt with historical and modern trends in maritime and coastal culture, problems and opportunities in heritage conservation, and national policies and practices in solving relevant problems. Representatives of Baltic Sea countries, as well as guests from the USA, Spain, France and Switzerland, shared their experiences, relating stories of global heritage, underwater cultural heritage, and different topics dealing with coastal area plans and activities.

Baltic Sea countries share a common history and, most importantly, a common sea. Coastal plans, which most of us associate with offshore wind parks, constitute a new challenge to states in the region. Various objects on the sea floor (ships, aircraft, buildings etc.) are no less significant.

The UNESCO convention for the protection of underwater cultural heritage has established a specific framework for the protection of this heritage, one of the more important criteria of which is to first consider conservation of objects in situ, or where they lie, before undertaking activities aimed at underwater heritage conservation. This priority emphasises the importance of historical and natural context, as well as favourable conservation conditions created by the original environment. Research on underwater sites using non-destructive methods, their preservation in situ and visualisation with the help of 3D models has found widespread use. Ways to render “invisible heritage” visible are increasingly sought. These methods have been used to describe and document an 18th century wreck, the Vrouw Maria, in Finland since 2001. Several questions of public interest arose when the fully preserved wreck sporting an interesting history was discovered. Most important was the question of whether to raise the wreck from the depths, conserve it and construct a separate museum around it, much like what occurred with the Vasa in Sweden. The initial decision was to try and preserve the wreck in situ and find ways to visualise the site of discovery and the environment surrounding it. Rapid technological advancement and systematic mapping of the sea floor means that a few hundred hitherto undiscovered objects are found in the Baltic Sea every year, many of which are well-preserved wrecks. Even though every country deserves its own Vasa, deciding on one has become a daunting task in light of the number of new discoveries.

DEVELOPMENT OF HISTORICAL COASTAL CITIES
Historical cities are often located on the coast not because they offer breathtaking sunsets or swimming opportunities in the summer, but rather because of suitable locations for ports. The sea was the most important connection between goods and people before paved roads and airports. Waterways brought wealth and cultural ties to coastal cities, and facilitated growth and development. Sprawling cargo ports were soon surrounded by warehouses, factories and infrastructure. The simultaneous growth of harbours, industry and population led to a shortage of space that soon caused ports and industry to move out of cities, to where land was cheaper and the neighbours were not bothered by the noise and transports blocking the streets. However, since neither nature nor landowners can abide empty space, a lot of cities are now
The Kiipsaare lighthouse is both a tourism object and a part of the heritage landscape that, together with the remains of a wrecked ship, showcases changes to the coastline and the fate of objects vital to navigation during their time. Photo by Marko Palm, published based on the Creative Commons Attribution-ShareAlike 3.0 Estonia license.

Remains of an old port site in Narva-Jõesuu. Photo by Maili Roio.
The Dutch merchant ship Vrouw Maria sank on its way from Amsterdam to St. Petersburg in 1771. The *in situ* reconstruction of the well-preserved wreck is based on photographic and video material. Drawing by Tiina Miettinen, Finnish National Board of Antiquities.

A view of Tallinn from the sea. Photo by Maili Roos.
(5) Aker Brygge in Oslo: the location of various 19th century industrial companies and a shipyard that has today become a hub of cafes, cinemas, offices and residential buildings. Photo by Jean-Pierre Delbera, published based on the Creative Commons Attribution license

(6) The Suomenlinna complex of fortifications, a UNESCO World Heritage Site, is a popular tourism object and leisure area in Helsinki, and is home to around 900 people. Photo by Ikuvaari Oy / Osmo Roivainen, archives of the Suomenlinna Administrative Council. Ikuvaari Oy / Osmo Roivainen, archives of the Suomenlinna Administrative Council
busy revitalising coastal areas: former port and industrial areas are turned into residential and business districts; culture, greenery and beaches also get a foothold here and there. In a sense, this is a renaissance of Industrial Revolution-era use of land, where coastlines sported, side by side, bathhouses, net sheds, small ports, and at times even dwellings built right on the water’s edge.

At the same time, nowhere are coastal areas of historical cities just empty development plots: they hold the strata of many centuries, from port constructions and wrecks preserved in the water and on land to older and newer buildings, generally either industrial or military. Decisions are needed in terms of what to preserve. As pointed out by the guest speaker Hilde Vangstad from Oslo at the forum, it is impossible to preserve and difficult to even document strata of constructions in the ground in many cities. Tallinn has been fortunate in that sense: the area between the Old Town and the sea lies within the boundaries of an archaeological monument, where it is at least possible to research what the ground holds.

When it comes to the development of coastal areas, it is extremely important to restore the city’s connection to the sea and preserve the valuable historical housing that gives the place its own countenance and story. Another guest from Norway, Cornelis Horn Evensen, said that even though several buildings are under state or local government protection, coastal areas tend to have much more housing that deserves to be preserved and that can be saved from destruction through the collection of information. Norway has created a register of historical buildings in coastal areas for that very purpose. Local governments can make use of it to steer regional developments, which has already yielded positive results.

Opening the city to the sea is a goal Tallinn set its sights on a long time ago. However, progress has been slowed by fragmentation of the area between numerous owners, prolonged planning processes, and the local government’s limited tools needed to expedite construction. Damiano Cerrone, who took a foreigner’s look at Tallinn, said he believes Tallinn’s biggest problem lies in the fact that private owners were given land free of construction conditions and plans, which has led to a situation where every owner is developing their land in a different direction and at a different pace.

Several positive examples from Baltic Sea countries of developments of coastal and riverside areas created the impression that coastal bicycle and pedestrian tracks, green areas and beach strips, as well as museums concert halls, and properly restored historical buildings, are the norm everywhere in Europe. While the actual situation is of course more varied, it is clear that this kind of coastal landscape is the ideal goal in virtually all historical cities. Nowhere are great closed-off industrial areas, gated urban regions looking to privatise beaches, faceless mass housing projects or highways pushing their way toward the sea missed or welcomed. Cities on the coast of the Baltic Sea that grew out of ports are busy expanding. This, in itself, is a good thing: the city has somewhere to grow besides fields on either side of highways, and the new residents have a view of sunsets. However, change must ensure that the old and the valuable don’t end up in the landfill, as well as avoiding the creation of monotonous and single-dimensional new development. Instead, the goal must be a living symbiosis of the coastal area’s colourful past and new functions.

The first shining example of this is the Estonian Maritime Museum, built in the city’s historical seaplane hangars. We can hope that this coastal pearl, winner of the Europa Nostra restoration prize, will see many neighbouring coastal monuments restored to the same level of quality, new architecture added to its surroundings, and the preservation of simple cosy leisure space.

The international company of the forum concluded that similar trends and problems exist in all historical coastal cities, former and current resort areas, fishing villages and maritime heritage landscapes. Despite similar questions, the forum concluded that there are no universal solutions. Each case is unique and depends on the goals, expectations and cooperation of different interest groups.

In spring 2015, the construction of new buildings in the Tivoli in Kadriorg in Tallinn began. Everything went according to plan while digging the foundations, until the moment when the soil strongly resisted the next installing of steel profile of a sheet pile wall. The cause of the obstruction was established by an excavator, which lifted waterlogged wooden fragments from the soil. The builders of Nordecon AS immediately got in touch with the National Heritage Board and informed them about finds at Pikksilma 2/1. A few days later the remains of another wreck were discovered about twenty or so metres away at the planned residence at Tuukri 23. One hundred years ago the area of the wrecks was still under the sea. In the 1930s, when an exhibition site was planned at the Kadriorg seaside, the North Paper and Cardboard Factory, in agreement with the local government, started to fill the area with coal ash. The ash, construction waste and household waste form a filling up to four metres thick, and the historical shipwrecks were lying underneath it.

THE WRECK VILJO
Archaeological excavations were started on the second wreck, which was called the Viljo after the Nordecon AS site manager Viljo Niit. The ship had run aground facing Kadriorg. Most of the port side and bottom had survived: the dimensions of the wholly surviving part are 14 x 3.5 m. The keel had come loose from the bottom of the boat, but had survived as well. It was found on the starboard side next to the bottom planks. The ship had been built according to Nordic traditions. Clinker planking was used, i.e. the planks were placed all along the ship, edge on edge. For waterproofing, animal hairs were used. The material of the wreck that was found was rather modest. Most finds were from a mixed layer and were connected with later activities. Everything of value that could be removed was probably taken soon after the ship wrecked. The origin of the sailing ship was indicated by a wooden block stuck between the frames. Some ropes had survived in the northern part of the fore.

DENDROCHRONOLOGICAL RESEARCH ON THE WRECK VILJO
For dendrochronological dating, wooden samples were taken from both wrecks. The age of the wood was established at a level of precision of one year. The age determination of an investigated object can be approximate or the earliest possible time (terminus post quem) when 1) the surface layer (underneath the bark) of wood is destroyed, 2) the object is made of wood which has been dried for years beforehand, 3) the object also has recycled old wood. We took these possibilities into consideration when dendro-dating the wrecks. We took 20 samples from the wreck Viljo. From the pine samples’ tree-ring series, we managed to average eight series with similar patterns into a 215-year tree-ring series. This tree-ring series was compared with the existing pine chronologies in Estonia and elsewhere in Europe. The mean tree ring series of the wreck Viljo turned out to be quite similar to Estonian pine chronology in a position where the last ring of the wreck corresponds to the Estonian pine chronology of 1487. As some rings on the edges of all of the planks had disappeared, the year 1487 was determined as the terminus post quem, i.e. the time after which the pines could have been felled. The pines for the planks were probably felled soon after 1487. The wreck Viljo is therefore one of the few surviving examples of local ship-building.

THE WRECK PEETER
The wreck in the western part of the plot was found first and excavated last. According to ground-penetrating radar research, it seemed to consist of the remains of two shipwrecks. However, during the excavations it became clear that the pieces were after all parts of the same ship.

The wreck Peeter was named after the excavator operator Peeter Hallikas. The length of the wreck with the aft pointing towards the Old Town was 18 m and the width 6.8 m. This was a wreck of a medieval merchant ship, a cog. In the ship, which had a straight stem post and stern post, the plank keel had survived in its entire length; also surviving was the northern part with carvel planking, or in other words smooth planking (planks placed edge-to-edge, sides built in clinker planking, keelson, inner planking, big knees and crossbeams). Moss was used to caulk the ship.

The material finds were much more abundant than that of the wreck Viljo. It may be assumed that the rescue team back then had little time. The wreck had burn marks, so there had probably been a fire caused by an accident.
DENDROCHRONOLOGICAL DATING OF THE WRECK PEETER

We took 16 wood samples from the wreck Peeter. Except for one pine sample, all of the samples were oak. On the basis of similarity, nine ring-width series were averaged into 263 years, which was compared with the existing oak chronologies in Europe. It appeared quite similar to the East Pomeranian oak chronology at a position where the last tree ring of the wreck corresponds to AD 1296. Just like the wreck Viljo, all oak samples had different calendar years, as rings had been erased from the surface of all samples because of hewing and rot. The dendro-dating is therefore AD 1296 terminus post quem, i.e. the ship could have been built after that year. The similarity of the year-ring series of oak wood of the wreck Peeter with the East Pomeranian oak chronology allowed us to assume that the oak trees used for building the ship grew in East Poland or further east.

ARTEFACTS FROM THE WRECK PEETER

Metal, wooden, leather birch bark, textile, clay and stone objects were found inside the wreck and around it. Pottery picked up in the wreck and nearby gave us an idea when the ship wrecked on the Kadriorg shore. This was not, however, as easy a task as it first seemed, because the set of pottery contained vessels from a broad stretch of time. The items from the wreck originated from the period between the late 13th – mid-14th century. Most of them were made up of stoneware widely used in regions of the North Sea and the Baltic Sea, mainly drinking vessels produced in Siegburg, near Cologne, and two larger jugs from Langerwehe, near Aachen. These were supplemented by kitchenware, some fragments of greyware probably made in northern Germany. The majority of approximately 30 clay objects were from the first third of the 14th century and only one Siegburg jug was a better fit for the mid-14th century (an earlier dating cannot be totally excluded either). Considering all this, it is likely that the ship got caught in a storm near Tallinn in the 1320s or 1330s.

Besides pottery, other important finds consisted of metal tripod pots in the kitchen corner of the ship. As the vessels basically remained the same for decades, even hundreds of years, they were not reliable for dating the shipwreck. However, on the basis of the tripod pot collection, it is now possible to prove that more than one such vessel was used in the kitchen at the same time. It is known from written sources that a household could have used more than a dozen metal pots, whereas archaeological excavations in Tallinn have so far yielded only one almost intact vessel and some fragments of a handle and foot.

Stone artefacts found in the kitchen also deserved special treatment: one two-sided quern and an ornamented mortar. Although a few similar finds, such as fragments, have been discovered in Tallinn, these were the first intact objects of this type found. It is quite likely that the mortar came from Caen stone industries in France, and it is the first of its kind found in the eastern part of the Baltic Sea. Normandy-produced mortars were mainly exported to coastal areas via the North Sea, but as indicated by some archaeological underwater finds, these were also used daily on ships coursing in the areas. Considering how dense the traffic was in the 14th century Hanseatic regions, finding a French product in Tallinn is not exceptional, but like other items found in the wreck Peeter, it shows the potential of archaeology for investigating the past communication network.
As the first details of the wrecks became visible a little less than a metre below sea level, a well-point de-watering system was installed around the excavation area. In addition, the sheet piling wall helped to keep the pits dry. The picture shows the wreck Viljo on day two. Photo by Maili Roio

The average width of the eight tree-ring series of the wood samples of the wreck Viljo (red line) synchronised with the Estonian pine chronology (black line). Years are on the horizontal axis, and the widths of the tree-ring series are on the vertical axis. Graph by Alar Läänelaid
FISH BONES AND SCALES FOUND IN THE WRECK PEETER

The assemblage of fish bones and scales found in the stern was considered kitchen waste. Most of them were from pike skeletons; the assemblage contained pike skulls and scales, but the vertebrae were largely missing. Some found vertebrae were from parts of a small pike’s head or tail. The considerable number of scales indicates that the fish was processed on board. The pike trunks with backbone were probably removed from the ship, as using them for food there and then would have left much bigger vertebrae among the waste. On the basis of the skull size, the trunks of the pikes in this assemblage were 60 to 80 cm long.

Besides pike, the kitchen waste also contained other types of fish, such as Baltic herring, cod and turbot. In order to establish their origin (the Baltic Sea vs. the Atlantic Ocean), more analyses are being made, although it is possible to claim on the basis of the size of the found fish that at least the two latter fish species could have come from the Atlantic, i.e. outside the Baltic Sea. Also of Atlantic origin in the wreck Peeter, found on the stern
side, were two bunches of cod, whose vertebral columns were tied together at their tails. Such traditional drying and trading of cod was widespread during the Hanseatic period. One bunch contained 16 and the other at least 10 cod. The average length of the fish was from 80 to 100 cm.

Fish bones were also found in the big wooden barrel in the fore and in a small birch bark vessel. Both contained Baltic herring bones. The barrel had fewer bones, but plenty of scales. The latter easily stick to a barrel or a fishing boat’s boards, as they get loose from the fish quite quickly. Even if the barrel had been emptied before the ship wrecked, the scales would still be stuck to its wall and later gathered at the bottom. The size of the scales and bones indicates that these were bigger Baltic herring from the Baltic Sea or from the Atlantic, although the size is not a good criterion here for differentiation. The Baltic herring and the Atlantic herring are essentially the same species, but the growth rate of fish in the Baltic Sea is slower than in the ocean environment and therefore separate subspecies have developed. More information about the fish in the barrel was obtained by comparing the width of the annual growth zones of scales. The fish remains thus added valuable knowledge to the fish trading and fish processing in the ship. Finding fish and other food waste in situ in wrecked ships is quite rare and allowed us to carry out more analyses of their origins on the basis of surviving materials.

IN CONCLUSION
Archaeological excavations of the shipwrecks organised by the Heritage Board took place within a relatively short time and with even less time for preparations. Cooperation between the developer Metro Capital OÜ and the builder Nordecon AS, as well as with many other institutions and individuals, was pleasantly efficient throughout the excavation work. As a result, our history has become much richer, although a lot of research still needs to be done. It is extremely valuable that both wrecks have been preserved for the next generations: the wreck Viljo was sunk and covered with sand bags in Tallinn Bay and the wreck Peeter is waiting to be conserved and displayed at the Estonian Maritime Museum. The reason for the different fates of the wrecks is simple: we do not have big enough storage facilities to keep archaeological finds of such dimensions. Besides, preserving damp timber is among the most complicated conservation tasks. An alternative for a museum, practised elsewhere as well, is to conserve a wreck in a similar environment, which in the case of a rescue excavation is also the fastest possibility. Both the sunken wreck and the conserved museum exhibit require long-term establishing of their conditions.

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In summer 2014, the Estonian Maritime Museum celebrated the centennial of the ice-breaking steamer Suur Tõll. For the anniversary, the museum renovated this floating historical and technological monument, one of the finest in Estonia, and set up a new permanent exhibition on board.

THE STORY OF SUUR TÕLL
The icebreaker, originally named the Tsar Mikhail Feodorovich, was commissioned by the Russian Ministry of Trade and Industry and built in 1913–1914 in the Vulcan-Werke Hamburg und Stettin AG shipyard in Stettin. The ship was intended to replace the existing Stadt Reval icebreaker in the Tallinn harbour. During its subsequent 74 years of service, the ship had five names, flew five flags and took part in two world wars, surviving the Juminda mine barrage, which is considered the bloodiest naval battle in history. The ship did its last ice-breaking in the 1970s and continued to serve as a tug and assistance vessel in harbour operations until the late 1980s.

Although Suur Tõll spent most of its service years under different names in foreign ownership, it played a significant historical role for Estonia. During the Estonian War of Independence, the ship, then held by Finland and named the Wäinämöinen, helped maintain a sea link between Tallinn and Helsinki. It was used to transport military equipment and volunteers from Denmark and Finland to assist the Estonian troops.

Beginning in the winter of 1922/1923, the icebreaker sailed under the Estonian flag as Suur Tõll, playing an important role in the young state’s economy. Around 80% of Estonia’s foreign trade was conducted through the Tallinn harbour at the time, so a powerful icebreaker was vital for maintaining trade all year round. Indeed, most western imports were brought in and local exports (mostly such agricultural produce as butter, bacon and eggs) shipped out through the port of Tallinn.

At the end of 1988, the Estonian National Maritime Museum managed to prevent the scrapping of the icebreaker. To save the decommissioned ship, the Council of Ministers of the Estonian SSR requested the Soviet navy to return the vessel to its home port to be transformed into a museum ship. The request was granted and the dilapidated ship was brought to Tallinn. Hardly could anyone have foreseen the scope of work required by such a large and complex vessel.

THE ICE-BREAKING MONUMENT
By an order of the Director of the Estonian National Maritime Museum, the ship was once again renamed Suur Tõll and became a branch of the Estonian National Maritime Museum. This raised issues with the registration and classification of the icebreaker, solved only in 1991 after the Republic of Estonia established its ship register and issued a certificate of ownership and flag certificate for the floating museum. In the new ship register established under the Ship Flag and Registers of Ships Act in 1998, Suur Tõll was registered as an ice-breaking museum vessel. A year later, the ship was listed as a historical monument under a regulation of the Minister of Culture. The Suur Tõll icebreaker was awarded monument status due to its role as a national naval icon and a bearer of Estonia’s naval continuity. It assumed those roles during the 1990s, when the life story of the vessel, long incompatible with the Soviet version of history, was rediscovered, and its contribution to the nation’s development was put in a modern perspective.

During the Soviet era, the icebreaker was mostly depicted as a technological monument, as the official concept of history considered it a “traitor” for discarding the red flag in 1918 and siding with the Finnish republicans. The reference to technological value also helped convince the Soviet Navy’s support fleet command of the necessity of preserving the ship and returning it to Tallinn. A transformation of meanings and values amid the patriotic euphoria of the 1990s is understandable, although the general historical importance of the Suur Tõll icebreaker in no way diminishes its value as a technological monument of the early 20th century.

The concepts for the renovation of the ship, the first of which was laid down in 1989, were mostly based on its cultural and patriotic significance. All subsequent versions largely agree on the appearance of the renovated
(1) Icebreaker in dock before repairs, September 2013. Photo by Mihkel Karu, Estonian Maritime Museum  
(2) Icebreaker in dock after repairs, October 2013. Photo by Vahur Lõhmus, Estonian Maritime Museum  
(3) View of the officers’ lounge from the original shipyard album, 1914. Photo by Estonian Maritime Museum  
(4) Officers’ lounge before restoration, June 2013. Photo by Andres Teiss, Estonian Maritime Museum  
(5) Officers’ lounge after restoration, November 2014. Photo by Vahur Lõhmus, Estonian Maritime Museum
vessel, which was to resemble its appearance during the Estonian independence era. While the first concepts were based on the 1924–1926 looks, this was later revised to that of the late 1930s.

Views of interior renovation were less consistent: the pre-WWII interiors had been mostly lost, except for some furniture and other minor details. As a result, a decision was made in 2013 to restore the ship’s crew quarters to their condition after the 1952 overhaul. The sole exception is the officers’ lounge, which was restored to its original state, based on historical photos and blueprints.

RENOVATION AND SETTING UP A PERMANENT EXHIBITION

Since the return to its home port in 1988, Suur Tõll has been under constant repair and renovation. The first renovation concepts and work plans indicate that the museum largely lacked the practical know-how to handle an object of this kind, and insufficient experience resulted in an overly optimistic work schedule. Since the return to its home port in 1988, Suur Tõll has been under constant repair and renovation. The first renovation concepts and work plans indicate that the museum largely lacked the practical know-how to handle an object of this kind, and insufficient experience resulted in an overly optimistic work schedule. 

Most work involving the upper deck (restoring the bridge, bulbark, masts, bow and stern to their original form) was completed in 1988–2013, and the ship gradually regained its late-1930s appearance. Meanwhile, much of the planned interior work, especially in the crew quarters and ancillary premises, lagged behind. Most of the work completed during the period was vital for merely preserving the ship. The extensive renovation of 2013–2014 was prompted by the need to fix up the crew quarters and ancillary premises, as well as further vital work to ensure the ship’s preservation and to comply with the Maritime Administration’s requirements for the safe hosting of visitors on board. Work began by docking the ship in 2013 in order to clean and repair the hull and the ballast, and the fuel and oil tanks, and to measure the wear of the body plating by ultrasound. Work on the ship’s technical systems commenced at the same time. As previous repairs in dock had been carried out in 1997, parts of the hull were in poor condition — peeling off a thick layer of biological matter revealed a number of heavily corroded spots. Meanwhile, ultrasound tests showed that most of the body plating had maintained at least 50% of the original thickness over the century. After clean-up and damage repairs, the hull was covered with special paints and equipped with zinc protectors to prevent corrosion.

Some major interior repairs also commenced while in the dock, including the restoration of skylights and two illuminators of the officers’ lounge.

Full-scale renovation of the main deck began in early 2014. Repairs of technical systems also continued to ensure safety and convenience for visitors. This “behind-the-scenes” work accounted for about half of the budget and volume. All work on electrical, water, ventilation and fire alarm systems and circulation pumps to adjust the water level in the ballast tanks was overseen by the Maritime Authority, and the results met all IMO and SOLAS requirements.

Most crew quarters and ancillary premises on the main deck were restored and about 20 are now open to visitors. Major work included the restoration of authentic walls, ceilings and floors, renovation of historical furniture and fixing minor historical details. The ship’s original interiors were best preserved in the officers’ cabins, where all original details had been refitted during the 1952 overhaul.

The most complex and unexpected issue was the poor condition of the metal floor between the vessel’s main deck and the engine rooms. Over the years, dozens of square metres of the deck above the boiler rooms had been almost reduced to rust due to heat and high humidity.

The ship’s finest and most exquisite room was the officers’ lounge. Its original Deutcher Werkbund-style late art nouveau interior design was restored according to Kadri Pärtelpoeg’s design, based on historical photos and blueprints. The decision to re-create the 1914 design was based on several considerations: the historical designs and original furniture had been preserved and the reopening of skylights and illuminators, sealed after the 1952 repairs, made it possible to restore the authentic interior. The largest single assignment was re-creating the historical plywood boarding on the walls and ceilings.

The ship’s repair and service history was researched during the repairs to facilitate renovation and the establishment of a new permanent exhibition. The permanent display focuses on the historical ship itself: its cabins, engine rooms etc. This is supplemented by a historical exhibition in the former coal bunker, providing diverse visual material and objects from the ship’s hundred-year history. The exhibition was designed by Laika, Belka & Strelka OÜ.

The preservation and maintenance of the museum ship Suur Tõll is not over. The aim of the Estonian Maritime Museum is to ensure the longest possible life for the dignified vessel, whose centennial history reflects the history of Estonia itself. This task is complicated by the fact that the ship must remain in water. Eight times heavier than the submarine Lembit, which is exhibited in the sea plane hangars, the icebreaker can hardly ever be hauled ashore.

The upcoming installation of a wooden deck cover is an important step in restoring the ship’s appearance. Several interesting rooms on the main deck, such as the doctor’s cabin and sickbay, are still awaiting renovation. On the technical side, the museum intends to convert the ship from electrical heating to a more environmentally friendly and cost-effective solution. Thus, Suur Tõll is living proof that there’s always some work to be done on a ship.
(6) Six-bed crew cabin before renovation, June 2013. Photo by Andres Teiss, Estonian Maritime Museum
(7) Six-bed crew cabin after renovation, November 2014. Photo by Vahur Lõhmus, Estonian Maritime Museum
(8) Starboard corridor before renovation, June 2013. Photo by Andres Teiss, Estonian Maritime Museum
(9) Starboard corridor after renovation, November 2014. Photo by Vahur Lõhmus, Estonian Maritime Museum
1 In Russian, Царь Михаилъ Феодоровичъ, named in honour of Tsar Mikhail I Feodorovich Romanov (1596–1645), the founder of the House of Romanov. In 1913, the Russian Empire marked its 300th anniversary with major celebrations.

2 Today’s Szczecin in north-west Poland.

3 Commissioned by the Tallinn Exchange Committee in 1899, also from the Vulcan-Werke AG shipyards. However, it proved incapable of keeping the Tallinn Harbour navigable during harsh winters.

4 27–31 August 1941.

5 According to Article XI of the Tartu Peace Treaty, signed on 2 February 1920, all Russian assets located on the territory and territorial waters of the Republic of Estonia as of 24 February 1918 belonged to the Estonian state from 15 November 1917. An annex to the article listed 23 vessels, including the icebreaker then known as Volonets, as belonging to Estonia. The vessel, which had been in Finland since 1918, was transferred to Estonia on 30 November 1922.


8 Regulation No. 13 “Designation of Cultural Monuments” of the Ministry of Culture of 24.03.1999 (RTL 1999, 63, 844). The registry number of the monument is 22267, classification: historical monument (see the National Register of Cultural Monuments).


10 In October 1997, the Estonian Maritime Museum held a scientific conference on the theme of Suur Tõll and historical ships. In 1999, Eesti Meremuuseumi toimetised No. 1 titled “Aurulaev ajaloomälestisena” (Proceedings of the Estonian maritime Museum No. 1, “Steamship as a historical monument”) was issued based on the conference materials (Teaduste Akadeemia Kirjastus, 1999).


13 The ship was overhauled in Finland’s Rauma–Raahe OY shipyard, financed by war reparations provided by the Moscow Armistice signed between Finland, the Soviet Union and the United Kingdom on 19 September 1944, ending the Continuation War.


15 As long as Suur Tõll is in water and in the ship register, it must meet the Maritime Authority’s (fire) safety and security rules, as well as other requirements for sea-going vessels as provided by Estonian law. For example, the ship must be docked for hull repairs on a regular basis (the frequency for each ship is established by the classification society according to the ship’s type and registration).

16 The International Maritime Organization is a UN agency responsible for maritime safety and security and the prevention of marine pollution from ships.

17 The International Convention for the Safety of Life at Sea. Its state parties undertake to ensure compliance by vessels flying their flags with the Convention’s minimum requirements on the ships’ construction, equipment and operations.
Searching for underground objects with metal detectors, i.e. detectorism, is a popular global hobby, and it has attracted hundreds of active enthusiasts over the last decade in Estonia. The excitement of finding something and an interest in history are among the frequent reasons given for spending long hours in a field with special tools, hoping to stumble on a treasure. Several detectorist clubs operate in Estonia, and various web platforms for those interested in detectorism have been set up. From the point of view of heritage protection and archaeology, however, detectorism has two sides. Although thanks to hobby searchers who cooperate with archaeologists and the National Heritage Board new information has been acquired about new monuments, occasional finds and treasures, irresponsible or mass detectorism endangers the survival of archaeological heritage. Ill-intentioned or thoughtless searching for and excavating of objects can permanently damage archaeological information sources. An archaeological site with holes dug in it, where finds have been taken out and the cultural layer turned upside down, resembles a book with torn pages: difficult to read and mistakenly interpreted.

Since 2011, the search with specialised equipment for culturally valuable finds, including ancient finds in Estonia, has been regulated by the Heritage Conservation Act. This enables enthusiasts to legally engage in their hobby, and at the same time guarantees that when something is discovered, all archaeological information reaches archaeologists. All finds with cultural value, i.e. ownerless movable with cultural, historical, natural or artistic value, by law belong to the state and are from the moment of discovery under temporary protection: they must by no means be damaged or removed from the find spot. It is forbidden to use the searching device on an archaeological monument and in its buffer zone. People who wish to use searching devices to find culturally valuable objects must take a special training course, which provides the necessary knowledge about underground objects and monuments, laws related to archaeological heritage and detectorism, the detectorist’s rights and duties, and the basic skills needed to handle finds. Those who finish the course can apply for a permit from the National Heritage Board, issued for one calendar year and renewed at the end of the year after a report is submitted.

In order to establish the cultural value of finds handed over to the state, the Heritage Board compiles an expert assessment, which determines the future preservation of the object and a reward for the finder. The Heritage Conservation Act grants the finder a reward depending on the cultural value of the find and the circumstances of its discovery. The aims of the reward are primarily to give credit to honest finders and motivate people to act lawfully.

How well does the act actually work? In 2012 the Heritage Board issued 91 permits providing the right to search for culturally valuable objects with detecting devices, whereas in 2016 the number of permits increased to 459. On average, five or six courses are organised each year for those wishing to apply for permits, including courses in Russian. Keen interest in the courses and the high percentage of submitted annual reports indicate that the permit system has by and large been accepted and the permit holders consider renewing the permits necessary. The reporting of finds has also significantly increased. In 2011–2012, the Heritage Board was informed about just 50 finds or assemblages, whereas in 2016 stray finds or find collections were handed over to the state on 121 occasions. The finds mainly consisted of Iron Age and medieval jewellery and jewellery fragments, weapons and weapon fragments, details of clothes, coins and treasures, etc. The large number of finds has also increased the finders’ rewards. In 2016 the Heritage Board paid out rewards totalling 100 475 euros.

The biggest contribution of detectorists to archaeology is tracking down new monuments and finding sites. People with metal detectors typically lead archaeologists to Iron Age settlement sites, burial places, historical roads, industry-related locations and treasure trove sites. The advantage of detectorists is that they move around in places that, on the basis of landscape logic and archaeological sources, archaeologists would not necessarily explore. In 2013, for example, a hobby detectorist discovered a sacrificial site in a field in Kohtla-Vanaküla in eastern Estonia which contained over 700 archaeological items. He immediately informed the Heritage Board and thus archaeologists, in cooperation with the members of the local detectorist club Kamerad, managed to establish most finds in their original contexts. Items offered as sacrifices on the former water meadow mainly consisted
(1) The open pit of the Kohila sacrificial site in autumn 2013. Photo by Allan Kimber (Tartu University) (2) Cleaning the seventh Köue hoard in the archaeological collections lab of Tallinn University. Photo by Nele Kangert
of different types of weapons and tools: spearheads, axes, sickles and scythes. The majority of the finds had been in the ground since the 5th – 6th centuries. This is the largest hoard in Estonia of this period. At the Heritage Board’s annual event, the finder was duly recognised and the sacrificial site of Kohtla was nominated as the find of the year in 2013.

Detectorists have opened up a totally new historical view of the Kõue region in northern Estonia. Between 2013 and 2016, seven Viking-era hoards were discovered there within an area of one to two kilometres. According to the archaeologist Mauri Kiudsoo, they were left in the ground around the year 1100, probably as a result of one event. The latest so far, i.e. the seventh Kõue hoard, was found in spring 2016. When the find, collected as a monolith was being cleaned in a lab, the remains of two birch bark granary boxes, one inside the other, were identified. There were also numerous remains of copper spiral and ring ornaments for clothes. The spirals indicated that the ornaments could have partly been attached to clothes. Unfortunately, the cloth had not survived and a great part of the spiral pattern had been scattered because of ploughing in the site. The hoard also contained pieces of bronze jewellery, various types of glass beads, tin beads, pendant coins and tin pendants. The latter are the most valuable components of the hoard: two pendants imitated Yaroslav the Wise silver coins, of which fewer than 10 samples are known in the world.

Although the changes in the law have greatly improved the relations between hobby detectorists and the heritage conservation people, and the state has received more information about finds than ever before, it should be kept in mind that the permit itself does not automatically make a person law-abiding: most crucial are his value criteria. The state has no clear knowledge of the number of people who actually work fields with metal detectors. There are still regions where discovered finds turn up on the black market rather than reaching archaeologists. The major hoards and numerous stray finds handed over to the state have posed a challenge to archaeologists, conservators and the existing system, revealing areas and practices that need further development and regulation. There is a need for more efficient monitoring, which would involve closer cooperation with the Police and Border Guard. Hobby detectorists’ reporting and information system should be made digital and more accessible to all parties. In sum, we have to admit that law-regulated hobby detectorism continues to develop and its full impact on archaeological heritage will be seen only in years to come.
The global black market in cultural property is among the biggest and most persistent illegal markets in the world, along with drug, weapon and human trafficking. A notable portion of such goods are archaeological objects extracted in the course of illegal excavations. It is important to emphasise that looting archaeological objects and illegal trading in cultural property are global phenomena and are problems in every country and not just in crisis areas. Illegal trading has been boosted by internet-based sales and easy access to technical equipment, for example metal detectors.

During a routine check in December 2015 at the border crossing in Luhamaa, the Tax and Customs Board (TCB) found a sword-like object on the back seat of a car coming to Estonia from Russia. Customs officers sought help from the National Heritage Board, where it was established that it was a rare and well-preserved Viking Age sword. The condition of the object and the absence of any documentation aroused suspicions that it might have come from an archaeological site, maybe dug up illegally from a burial place.

On the basis of information from the Heritage Board, TCB confiscated the sword until the circumstances could be established. Through the media, information about the 11th century sword confiscated at the border reached Ukrainian archaeologists, who recognised a find that had been presented earlier in the year on the internet forum of Ukrainian metal detectorists. According to the forum, the sword was dug up by a detectorist in the Volyn oblast. Via the Ukrainian embassy in Estonia, Ukraine presented an appeal to the Estonian state to return the archaeological find.

The sword was handed over to representatives of the Ukrainian Ministry of Culture at the Ukrainian cultural centre on 12 May 2016. It was returned on the basis of the UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, also known as the convention of 1970. This is one of the conventions with the biggest number of members in UNESCO (131 member states). It provides an international framework for dealing with just this type of situation. The fact that there was a Ukrainian embassy in Estonia made everything much simpler. As the convention is global, it also makes it possible to work with countries with whom Estonia has no close diplomatic relations.

(1) Confiscated Viking Age sword was returned to Ukraine. Photo by Siim Löövi (2) Handle of the sword. Photo by Nele Kangert
ANCIENT ESTONIAN STRONGHOLDS
AND HERITAGE CONSERVATION

Ulla Kadakas and Toomas Tamla

ANCIENT STRONGHOLDS TODAY

Estonia’s archaeological heritage is rich and diverse, although the only surviving examples of ancient monumental architecture are strongholds. How many strongholds Estonia used to have is anybody’s guess. One hundred and twenty-four monuments are under state protection, 103 of which are strongholds in the classic sense and the other 21 are temporary refuges in case of conflict. Occasionally archaeologists come upon another stronghold, and even now about a dozen new hill forts are waiting to be listed. The number is actually not that big. In Latvia, for example, 400 stronghold sites are known, and there are 800 in Lithuania.

Although only grass-covered ramparts remain of Estonian strongholds, they are still invaluable sources of information, as there are no written sources and thus these places provide knowledge of ancient society, habitation, warfare and the everyday life of the people. The strongholds also constitute brilliant examples of how the memory of people has been preserved. There are no records, for example, of the 13th century freedom fighting, whereas strongholds have never been quite forgotten. Some remained in use as sacred places, or places where people gathered and built Midsummer bonfires; in some cases, a village cemetery was established there. Many are referred to in place names.

Somewhat fewer than one-third of all strongholds have been cleared of big trees and brush and are nicely visible on the landscape. In the second third, the embankment is overgrown, but at least the inner courtyard is partly bare. The rest are located in forest areas and it is thus more difficult to examine them. Most of the strongholds, however, are now accessible.

Not much actually needs to be done to preserve strongholds, as archaeological layers survive underground regardless of what happens above ground. However, to present them better, regular felling and mowing need to be done. It is allowed to use Estonia strongholds as pasture on condition that the animals do not tread too heavily and break the ramparts and the courtyards. As elsewhere in Europe, new buildings for visitors must be put up without foundations, steps must be installed and the paths kept clear on the rampart ridges.

A stronghold speaks for itself best of all, i.e. it is not permitted to build any structures obstructing the view or ramps leading to ramparts. So far the strongholds, on the whole, have been marked only with signs of being national monuments.

(1) Kassinurme hill fort in Jõgeva County. Photo by Toomas Tamla
DISTINGUISHED WITNESSES OF THE PAST OR TODAY’S OBJECTS OF MARKETING?

Cultural monuments not only preserve the past for the future: they should be examined and enjoyed by our own time as well. The more historical layers can be perceived and used in our daily landscape, the richer we are.

Traditionally, strongholds have been places for community gatherings, as they are suitable for organising festivals, concerts and fairs, and can be destinations for hikes or walks. At least half of Estonian strongholds have places to build fires and have picnics, places for singing and dancing have been added to some, and elsewhere various hiking and sporting trails pass through the strongholds.

At the less used strongholds, unfortunately, people have taken up racing their all-terrain vehicles on the ramparts, and the illegal use of electronic metal detectors has been ascertained as well.

About a dozen strongholds are actively in use as tourism objects, as well as locations for various events. For example at Varbola, the biggest hill fort in Estonia, the local rural municipality has organised the international wood-carving event “Varbola Tree” for twenty years; there are also events of local or regional importance.

For 2015–2018, the State Forest Management Centre, in cooperation with the Viljandi Culture Academy, the Finnish Forest Enterprise and the Finnish institution of applied higher education Humak, was granted support for the project “Lights On!”. The aim is to establish a common network of tourism objects of historical value in Estonia and Finland. In Estonia, various undertakings are planned at the Varbola, Lõhavere and Neeruti hill forts. In Saaremaa, there was hope of getting money for a tourist trail consisting of 10 strongholds. Although the project did not get any funding, the preparations united Saaremaa’s communities and many things were finally discussed and decided.

There has been increasing talk recently about the need to market cultural monuments better, and to establish theme parks and reconstructions. Some have even suggested building a few ancient or medieval strongholds. It should be mentioned here that ancient Estonian strongholds are most impressive when they are natural and genuine. They should not be burdened with structures that merely try to replicate them.

It is much better to preserve and introduce them exactly as they have stood for hundreds of years. An excellent example of such activity is the “bed” of the Estonian mythical hero Kalevipoeg. It is looked after by Jõgeva County’s Forest Society. The hill fort is nice and tidy, nearby stands the reconstruction of a possible ancient stronghold and the whole place, with the historical sacred grove and sacrificial stones, is hugely popular among local people, those who wish to recreate ancient times and those who organise fairy-tale role play events.
(3) Lohavere hill fort in Viljandi County. Photo by Anne Kivi

(4) Põide hill fort in Saaremaa. Photo by Peeter Säre
Sacred natural sites are among the most interesting and multi-layered monuments of Estonia’s archaeological heritage: places that unite tangible and intangible values. Although the existing law defines sacred natural sites as archaeological monuments, the archaeological layers of culture can rarely be found there. The key feature of sacred natural sites is the presence of an oral tradition associated with worship, sacrifice, prayer and healing.

Today 455 sacred natural sites are protected under national legislation: sacred groves (hiis, hiied), forests, trees, sacrificial stones and springs. In addition there are 1587 protected cup-marked stones. Although cup-marked stones have symmetrical hollows in them which are recognizably of human origin, they are hardly mentioned in the folklore and are therefore not considered to be “full-fledged” sanctuaries. Also, stone graves and other burial mounds are generally not included among sacred natural sites.

The number of unprotected sacred natural sites is considerably larger. Based on different estimates, the figure varies from a few thousand to seven thousand.

To organise their protection, a new direction has been taken with the amendment in the Heritage Conservation Act that gives the sacred natural sites a separate monument status, which will no longer bind them so strictly to archaeology.

The approved development plan for the study and maintenance of sacred natural sites in 2015–20201 continues the work carried out during the previous period of 2008–20122.

WHAT IS A SACRED NATURAL SITE
The development plan defines sacred natural sites as follows: “Sacred natural sites are natural sites and landscapes associated with sacrifice, healing, prayer or other religious and exterior landscapes connected to sacrifice involving treatment, prayer or other religious activities, referring to folkloric, archaeological, historical, ethnological or other data. These can be individual trees, groups of trees and woods, springs, rivers, streams or other bodies of water, various features of the landscape, such as hills, valleys, cliffs and rocks, various sites related to sacrificial duties and others.”

Probably the most common term for the sacred natural site is hiis (sacred grove) or hiiekoht (sacred place). This may extend to a wide variety of natural objects: a sacred hill, wood, tree, stone, field, well or swamp. Hiis does not necessarily refer to trees.

Many of the sacred natural sites are still in active use today: people visit them to meditate, pray and make offerings and to seek remedies for the body and soul. Sacred natural sites are considered to be places where the continuity between generations and the natural and spiritual heritage is maintained.

In general, it is problematic to determine the exact time when the sacred natural sites were used, as in most cases there is no data apart from oral lore, which was mostly collected at the turn of the 19th and 20th centuries or even later. Of course, the folklore clearly reflects considerably older layers of information.

One of the most complicated problems associated with sacred natural sites is whether the state protection is justified: do we still need them? What for? The opinions of stakeholders — landowners, local communities, researchers and members of native religious groups — concerning the use and appreciation of sacred natural sites can be very conflicting. On one hand, there is freedom of religion...
and traditional customs can be followed in Estonia but, on the other hand, most of the sites are under private ownership and vague indications from folklore may not provide sufficient grounds to impose restrictions. Therefore, finding a compromise between stakeholders is one of the key factors in the protection of sacred natural sites.

RESULTS OF THE DEVELOPMENT PLAN OF 2008–2012

The first development plan dedicated to sacred natural sites was only approved in 2008. This was a pilot project aimed at formulating a long-term plan of activities and mapping of the current situation. Due to a lack of funds, only a small part of the initial inventory plan (in one-third of Estonian parishes) was carried out. For implementation of the development plan, the Centre of Sacred Natural Sites was established at the University of Tartu, and an expert committee was set up to advise the National Heritage Board.

The first phase of the implementation focuses on, among other things, enhancing appreciation of sacred natural sites and informing the public: numerous articles have been published and photo exhibitions (Hiie Sõber and Hiie Kuva), information days, seminars and excursions have been organised.

Although the development plan was funded at only about 20% of the initial application, important steps were taken in raising people’s awareness of the sacred sites and in organising their protection. The results of public opinion polls conducted in the framework of the development plan indicated that one of the main factors that significantly hinders the preservation of sacred natural sites has been the lack of information available to the public.

DEVELOPMENT PLAN FOR 2015–2020

The protection of sacred natural sites is complicated by the fact that the locations of unprotected sites are mostly unknown. To find them, it may be helpful to use old maps and folkloric texts stored in the archives.

Compared to the previous stage, the aim is to intensify both the methodology and volume of the fieldwork. In terms of the protection of sacred natural sites, it is most important to collect the location data, delineate the boundaries and transfer the information to the map applications which are available to the authorities. This would significantly ease the process of effective decision making and thereby avoid the risks associated with changing the landscape (e.g., felling, mining and road construction). Equally important is the distribution and continuing popularisation of the information gathered.

In addition to the annual funding from the budget of the National Heritage Board, in 2016 the Environmental Investment Center decided to support the inventories of sacred natural sites with approximately 75,000 euros. Both archival and field research projects were conducted with the aim of performing an inventory of the sacred natural sites in Harju and Rapla counties.


Old parks are specific types of heritage in that they combine two value areas - culture and nature — and therefore certainly require a different approach from material cultural heritage in general. The connecting link between the two types lies in the aesthetics expressed in park design. The essence of a park as artwork is created in the co-effect of these two elements. This is a symbiotic association in which one cannot exist without the other. Nature here is not nature in itself, nor is art: it is the two in constant interaction that make up an ever evolving whole, in which both human choices and natural processes play determining roles. In view of the large number of old parks in Estonia, the present doctoral theses aims to address the question of how to approach these specific monuments today.

The architectural value of historical parks in Estonia and the stylistic techniques characteristic of different periods can be attributed to the periods of Baroque, Neo-Classicism and Revival in architecture; parks can also have other cultural and historical values, such as links with significant individuals or events, or specific uses in certain periods.

The main problem with our parks lies in the lack of continuity during the 20th century, primarily due to societal changes in this period.

At the same time, parks in Estonia have acquired a considerable natural value, which is mainly connected with two facts: first, parks represent old valuable broad-leaved stands, which have become very scarce as natural forests; and second, parks usually have a diverse landscape structure, therefore supporting a wider variety of species.

The high nature value of old broadleaved forests is primarily derived from the fact that they provide a growth substrate for many bryophyte, lichen and fungi species that grow exclusively on old trees, of which the majority prefer certain tree species. Old trees also provide hollows for cavity-nesting birds, such as woodpeckers and owls, as well as cavity-nesting mammals and insects. Hence, when regarded in connection with our landscape in general, parks acquire an utterly different meaning as bearers of not merely cultural but also nature value.

The research question of the thesis is whether and to what extent design objectives and biodiversity conservation objectives can be combined in park restoration. The main reason for posing this question is the fact that consideration of natural values has, in general, not been set as a distinct objective or these issues have been dealt with separately.

The main focus has mostly been on the design of parks, and there have also been examples in recent years where parks have even been cleaned for restoration purposes too eagerly and, as a result, the park’s design value has suffered and the ecological balance in the park has been disturbed for decades.

This thesis aims to combine the two value areas in a mutually beneficial manner: to show that ecology can be at the service of park design and, vice versa, design decisions can promote biological diversity. The approach suggested in the thesis could be termed the “ecological restoration of parks”.

There are two principal differences from the restoration of natural communities: first, the restoration activities in this case are not aimed at preserving the natural state but at preserving and increasing biological diversity, and second, design issues of the park are also dealt with.

Concerning biological diversity in park restoration, the needs of the key biotic groups in parks have to be identified. These biotic groups are the following: woody plants, herbaceous plants, bryophytes, lichen, invertebrates, amphibians and reptiles, as well as mammals.

Conclusions have been presented in two ways: a synoptic table covering the characteristic qualities and elements, and a list of restoration activities by biotic groups, which also provides the main methodological basis for dealing with the restoration task.

The essence of the thesis lies in dealing with restoration in eleven parks of Saare County. This, along with the motivation of the choices made, is described verbally and
LAND AND SEA

(1) The Gloomy Garden in Vääna Manor Park, probably dating back to the Baroque period. Photo by Peeter Säre
(2) The back field of the Aruküla manor in 1912. Characteristic of the Gothic Revival period, the front yards and backfields of manors were often decorated with intricate and labour-intensive flowerbeds. Photo from Jaan Vali's private collection
(3–4) The northern part of the Pädaste manor park. Its status in the summer of 2011 and the same view in a photo assemblage after restoration. Prominent and rare trees should be highlighted here and their light conditions improved. This would also create conditions for shrub planting and for increasing the species diversity of herbaceous plants. Self-regenerated young trees by the wall surrounding the park should also be removed, as these damage the wall and interfere with the viewability of the surrounding landscape. Photo by Urve Sinijärv, photo assemblage by Mart Kivisild
illustrated by means of photo assemblages. The objective is to suggest an individual solution for each park, depending on its status and problems, in line with the primary aim of the thesis: to simultaneously restore the historical spatial structure and design idea of the park and facilitate the preservation and increase of biodiversity in the park. One of the key conclusions on the basis of the presented restoration solutions is that the design objectives and species conservation objectives can, in general, be successfully combined and that most of the objectives regarding individual biotic groups overlap with the design objectives, being mutually supportive. It can also confidently be stated that the design diversity of parks is directly related to the diversity of native species, and that parks are important habitats for many biotic groups.

Examination of the parks concerned also made it possible to identify a number of pervasive problems characteristic of our old parks that can be solved by means of restoration and maintenance activities. One of the key notions is coherence. Recommendations concerning single activities or biotic groups have been proposed previously, but never in a holistic and associated way, nor considering the peculiarities of Estonian parks.

In previous restoration, parks have been treated primarily as architectural compositions and the issues addressed have mostly concerned design. Approaching a park as an ecosystem has generally not been attempted. Yet, in parks as ecosystems, attention needs to be paid to the biotic community, in which all components are interrelated, creating living and growth conditions for one another. By purposefully directing the processes, those interrelations can be strengthened and more favourable conditions can be created for the growth of biodiversity. At the same time, this should be carried out in harmony with design objectives, because in addressing only the growth of biodiversity, the main and original purpose of a park — to provide an environment offering a cultural experience — would be neglected. This is the specific character of ecological restoration and the main difference from the restoration of natural communities.

The final outcome of the thesis is a set of suggested practical activities for the restoration and maintenance of the parks, taking into account both design objectives and species conservation objectives. Needless to say, the guidelines provided are of a general nature. Any decisions in relation to a specific park should always be made by the conservator and/or designer and/or architect concerned. Finding a restoration solution always depends on a multitude of circumstances: the wishes of the owner or proprietor, the functions of the park, its historical development and current state, funds available and a lot more.

The thesis proposes an alternative approach to parks, so as to provide a habitat also for our wild plant and animal species whose living and growing conditions have become limited in landscape heavily influenced by human activity, and to apply an ecosystem approach to park restoration. Maintaining and improving the aesthetic appearance of parks certainly remains the primary objective. Considering the abundance of old parks in Estonia, their maintenance and restoration with natural values in mind is in several ways probably more fruitful than attempts at “ideal” and maybe even overly groomed parks. This represents a conceptual change of attitude in park maintenance and restoration: to cooperate with nature and to value all of its manifestations, simultaneously preserving and highlighting the beauty that draws people to parks.

The thesis inspired the following final thought: initially parks were created as havens for people, but today they are becoming more and more refuges for wildlife.

How successful this effort is depends on our decisions.
In 2015, the Estonian Open Air Museum was awarded the Grand Prix by Europa Nostra in the category of education, training and awareness raising. This is the highest prize for cultural heritage in the EU. The museum’s programme for owners of rural buildings in Estonia was chosen from among 77 projects from all over Europe.

Europa Nostra, founded in 1963, is the most representative non-governmental heritage organisation in Europe, with members from over 40 countries. The organisation is dedicated to the promotion and protection of Europe’s natural and cultural heritage. Since 2002, together with the European Commission, the EU prize for cultural heritage/Europa Nostra award has been presented.

In 2015, 28 projects out of 263 received the prize. There are four categories of the award: conservation, research, dedicated service by individuals and organisations, and education, training and awareness raising. Of these, seven are selected for the Grand Prix.

The programme started in 2008 and gave the museum an opportunity to radically broaden its horizons: it embarked on a programme of training for owners of heritage rural buildings throughout the country. The majority of Estonian farms are not listed monuments, and their preservation remains solely the responsibility of the owners. People in rural areas need practical advice, with examples, on how to renovate their old rural properties.

In terms of content, the programme consists of master classes dedicated to a certain building and the participants learn through practical work. So far over 80 practical workshops and information days have been organised and more than 1700 people have taken part in them. In the course of the programme, a strong network of master craftsmen and other specialists who together take care of the preservation of traditional rural architecture has been formed. Therefore the prize is a recognition of not only the work done by the museum but also its partners: the master craftsmen, specialists and house owners who allowed the workshops to meet in their premises. The main partners are Vanaajamaja and SRIK (Information Centre for Sustainable Renovation), which have inspired the courses and have actively contributed to their execution.

Farm architecture is not listed in Estonia or in Europe in general and thus is not eligible for state support. We believe that our activities have helped to encourage many house owners in Estonia, and we hope that our experience inspires colleagues in other European countries.

Since 2002, Estonia has received the Europa Nostra award/EU prize on seven occasions: in addition to the owners’ programme, the film “Kalamaja, opportunity for a wooden city”, the study of the Estonian lighthouses by Jaan Vali, the research project “Rode Altarpiece in Close-Up” and the exemplary conservations of the Villa Tammekann in Tartu, the Tallinn Town Hall and the Seaplane hangars have been recognised, the latter with another Grand Prix.
BUILT HERITAGE
The conservation and restoration of the bastion zone of the Kuressaare fortress in 2010–2015 is probably the most substantial and complex recent restoration project in Estonia. Preparation work lasted for almost ten years. Of the six years the project took, four were spent directly on construction work, the other two years on all sorts of procurements and bankruptcy processes. In four years, about 6800 m² of stone walls (i.e. 3200 m³) was conserved or restored, using 2300 tonnes of mortar and about 400 lorry loads of various stones. All of the conservation and restoration work was noted and documented in annual reports, six volumes in all. An archaeologist recorded the research in four bulky reports. At least ten articles have been published directly about the research and restoration of the Kuressaare castle, and a comprehensive monograph has recently been published as well. Despite extensive bureaucratic problems emerging during the project, it can be considered a success. During the Soviet era, the Kuressaare castle was one of the most elite objects, and much attention to its restoration was paid on the state level. As a result of the restoration work starting in the late 1960s and lasting for about 30 years, the medieval Konventhaus type building got a new lease on life as a museum, and the fortress’s front was restored from the east bastion to the north bastion. The medieval surrounding wall in the courtyard was partly reconstructed as well. Although work lasted for a very long time, less than a third of the bastion zone was worked on. After Estonia regained independence and the national heritage conservation system was reorganised, minor repair and restoration work was undertaken in the castle, on the initiative of the Saaremaa museum. The only extensive effort was cleaning out the moat and the coves of Ujula and Tori in 1999–2001. As a result of the joint project of the Kuressaare city government and the Finnish Ministry of the Environment, the vicinity of the fortress was totally transformed. During the following years the whole area, with its spa hotels, beach, sailing club and other holiday institutions again became the town’s recreational centre. However, the fortress somewhat resembled a Potemkin village: a more or less polished facade, but the rest hopelessly overgrown and covered with ruins.

PREPARATION OF THE PROJECT
The planning began in 2000, when the vertical survey of the structures in the bastion zone of the fortress was completed: it helped to get at least some idea of the amount of work required. In 2002–2003, the National Heritage Board financed smaller restoration work on the northwestern side of the medieval surrounding wall, where modern technology of conserving natural stone walls was tried out as well (this was later used with other stone walls of the castle). In the course of the next three years and on the initiative of the Saaremaa museum, the development plan for the Kuressaare fortress was put together; the second volume directly dealt with the theme of conserving the castle. The walls were examined and in April 2006 the restoration project planning was completed. It took three more years before restoration could begin.

AIMS AND PRINCIPLES
The main principles of conservation and restoration work were formulated in the 2004 development plan, and were specified during the work. The principles were: 1) halting the physical disintegration of structures in the bastion zone, 2) elaborate and better display of the history of the castle and fortress, 3) improving the functionality and infrastructure of the castle as a museum and recreation centre, and 4) maintaining the castle as the centre of the town’s leisure area. The first and the last aims are easy to understand and do not require more explanation. The other two are somewhat more complicated and not immediately understandable. The Kuressaare fortress is the result of a very long evolutionary development. Every era has left its traces here: different fortification principles, material usage, types of wall etc. Previously, the viewer was probably only aware of the differences between the medieval castle and the later bastion fortifications. In reality, the ramparts too bear traces of different eras and events, which we wanted to emphasise and display more clearly. Improving the functionality and infrastructure of the castle as both a museum and recreation area are perhaps the most contradictory of all the formulated aims. It would be easy to appeal to the Heritage Conservation Act or the Venice Charter and demand that everything original must be conserved without any alterations and be preserved for eternity. However, a museum is more than just an architectural monument. It is visited annually by tens of thousands of people. In addition, the courtyard hosts open-air events every year for thousands, and these events
(1) Front façade of the castle restored during the Soviet era. Photos by Tõnu Sepp

(2) The south-eastern side of the castle before restoration in 2010 …

(3) … and after, in 2015

(4) The western flank of the southern bastion before restoration in 2010 …

(5) … and after, in 2015.
set their own conditions. One of the most drastic manifestations of this aim is the new gateway at the back of the castle: a rather brutal but necessary breakthrough in the 17th century curtain wall. The development plan and project documentation list the four most important general principles of restoration work: 1) conservation should be the norm on all masonry; restoring the whole is justified only selectively in individual places and theoretical reconstructions should be avoided; 2) avoid unification of materials and methods; the fortress walls must maintain their original appearance and historical veracity; 3) new functional additions must be clearly distinguished and should not copy historical constructions; and 4) as the centre of the town’s recreation area, the fortress should form an integral and aesthetically enjoyable whole.

Choosing the conservation principle meant that the idea of completely covering the walls with dolomite, as was done during the Soviet era, was abandoned. For builders this made their work more complicated, because previously it had been the dolomite lining that made the walls weather-proof. The project suggested using dolomite at the foot of the walls, up to a few rows of stone, in order to mark the former dolomite lining and at the same time protect the lower part of the walls from ice and snow. The dolomite lining was supposed to be partially restored also at the top of the bastions and on lower flanks to emphasise the fortress’s relief and make it more visible. The ban on the unification of materials and methods was directly inspired by the Soviet-era work, where the same stone was used for all walls, and thus the totally different Swedish and Russian period walls became indistinguishable. As mentioned above, one aim was to preserve and emphasise the diversity of walls dating from different eras. We can say today that the undertaking proved successful: medieval mixed walls, Danish-era limestone walls, Swedish-era highly orderly natural stone walls with dolomite lining, and the Russian-era dolomite-lined walls of small stones can be clearly distinguished.

**MASONRY WORK**

As the statistics at the beginning of the article show, the masonry work was more extensive than initially presumed. In four years all of the curtain walls, the exterior walls of the bastions and the tops of the fortifications were conserved and partially restored: this job had not been carried out in the Soviet period. Only the ravelins in the moat were not conserved, due to a lack of resources. However, the sections of the walls with surviving dolomite lining of two ravelins were covered with safety nets to prevent them from collapsing. Besides the exterior walls, the ruins of two medieval towers of the surrounding wall were dug out and conserved, along with a bit of wall between them. As this was a surrounding wall, largely “restored” during the Soviet era, the outer bailey now displays various restoration principles of different times. Mention should also be made of the restoration of a Danish-era artillery position in the north bastion, building a new vault to the gateway of the same bastion, full restoration of the western flank up to the cannons, placed in their positions, and the restoration of the gunpowder cellar of the south bastion.

**RESULT**

The clearest result is of course the halting of the disintegration of the walls. Some crumbling continues, but it is a slow and natural phenomenon, kept under control by regular maintenance work. The most visible result is certainly the restoration of the relief, which is quite close to the original. This revealed and explained the castle’s past fortification principles and manner of building. For those who remember the pre-restoration bastion flanks with their green flat slopes, it is clear what an erroneous image these caused of the fortress’s construction principles. There are numerous bastion fortifications in the world (including Estonia) constructed without walls, and erected by merely amassing earth. The Kuressaare fortress, however, has never been built like that, and hence the old bastion told the wrong story when it began to collapse. Restoring the walls and the original relief made the castle look authentic again. Conservation and restoration of the fortress has also considerably clarified its history and made it visible. We now know quite precisely which parts date from the Danish period (1559–1645), which from the Swedish (1645–1721) and which from the Russian period (1721–1834), and the plans during these different times. Fascinating data has been acquired about the building technology of different eras as well. Visitors can now follow the dramatic events of the Great Northern War in the fortress, when the Russian troops laid mines and blew up the bastions in April 1711. Three of the four bastions were badly damaged and were restored only in the late 18th century, with slightly different shapes and walls that differed a great deal from the Swedish-era walls.

And of course ... the Kuressaare castle is now better maintained and more beautiful than ever!
The Tallinn Old Town has relatively few surviving authentic granaries. The most remarkable is the large and imposing multi-storey stone building in Aida Street, today used by the Estonian Museum of Applied Art and Design. Another better known building is the large barn in Vana Turu, which now holds the Olde Hansa restaurant. Smaller barns have mostly been rebuilt into residences and have thus lost the typical appearance of their original function. Two true gems are the medieval buildings standing side by side at 1 Sauna Street, abandoned for years and waiting to be restored. Buildings start crumbling when not in use. However, finding a new function that would require minimal reconstruction is not an easy task. All previous more extensive plans, e.g. architect Erich Jacoby’s project at the beginning of the 20th century to radically change the barns and turn them into Weinstubes, and plans to establish a theatre in the inner courtyard twenty years ago luckily came to nothing.

Both two-storey stone barns have vaulted basements and attics. A doorway cuts through the smaller building. The bigger barn has a traditional facade with loading hatches and perfectly surviving grain bin structures. The development project Hansaait wished to use the rooms in the big barn for a restaurant, the lower floor of the smaller barn for a gallery-boutique, and turn the two upper floors into flats.

The construction work for the theatre was halted in 1999, but managed to do quite a bit of damage to the barns. The half-finished drainage system for excess water in the basements hastened calcification processes, which made the interior wall surfaces begin to crumble and no layers of paint or plaster stuck to the exterior walls. Thus the key issue in the restoration work starting in 2011 was to eliminate damages caused by damp and salts and prevent them from spreading.

On the advice of Remmers Baltic OÜ, the joints in the two damp outer walls of the big barn’s basement were cleaned up to 2 cm deep, and the walls were covered with rough mortar and then with levelling plaster. When the plaster had dried, a mineral, damp-proof layer that lets through water vapour was put on the wall. Restoration plaster and restoration paints were used for finishing.

On the upper floors, the limestone surfaces were manually brushed to loosen flaking layers. It was decided not to plaster the walls; only minimal repairs were made, plus jointing. The final satisfactory results will probably be visible in a few years’ time, when the sodium chloride layer that had gathered on the surface because of the heating of the rooms becomes stable and the walls no longer crumble.

Another major task was to clean and replace the rot-damaged ends of the beams in the barn rooms and partly replace wall plates. Wood structures were cleaned with a low-pressure method, using powdered glass, which does not harm the surface. The missing inserted ceiling of the small barn was rebuilt. New wooden stairs between the storeys were built in the same places. Some numbers, letters and the date 1764 were found on the bin beams in the big barn. This was of course not the date of the construction, but an indication of goods stored that year.

Carved details previously covered with restoration mixture were in bad condition. After some deliberation, the carved stone window jambs were conserved and rollers were restored with artificial stone. There was no original plaster on the facades. The entire later plaster was removed and the walls were newly plastered. The carved portal with chamfered corners in the passageway to the courtyard, which had previously been covered with plaster, is now nicely displayed. Perfectly surviving original wrought iron bars were found on the street facade of the small barn when the bricked-up window was revealed, and the same were found when a walled-in window in the barn wall facing the courtyard was opened up.

Over the centuries, the courtyard wall of the big barn had slowly protruded, in places by 50 cm. An attempt was made to halt this process by means of expanders and metal anchors. Building a new courtyard structure against the problematic wall stabilised the situation and the expanders were removed.

A few old door and window apertures of historical importance in the big barn were kept, and everything was replaced in the small barn. The door of the main entrance was restored, and a glass tambour was added on the inside for warmth. The goods’ hatch on the first floor was restored, insulated and covered with boarding on the inside. The original external frames of the upper level hatch were preserved, and a new winch block was added on the inside.

Unfortunately, it was not possible to restore the drainage well in the basement of the big barn. The previ-
ously walled-up candle niches in the basement of the small barn were reopened, and fragments of the original wall stairs are displayed.

The small barn also had a few surprises in store. Besides renaissance-style paintings adorning the carved stone window splays, which resembled the 1596 paint- ings on the inside of the main entrance of the House of the Brotherhood of Blackheads, decorative painting fragments were also found on a wall on the first floor. This was probably a type of ornament painting that was widespread in Tallinn in the late 16th and in the 17th centuries. A wall panel or a painting imitating draperies may have been added to it.

In conserving and restoring old buildings, today’s requirements must be taken into account and compromises must be made between the past and the present. For that reason, new breakthrough passages were established in the big barn’s wall facing the courtyard in order to connect with evacuation stairs, and a fire barrier on the first floor. A new stairwell had to be built in the small barn on the side facing the courtyard, as the previous one had been demolished in the course of construction work for the theatre project, and there were no stairs between the floors.

In summary, the changes have been minimal and one of the few surviving medieval barns in Tallinn is now open to the general public in its original form.
Heat storage hypocausts, or hot-air heating systems, were used to heat residences, monasteries, almshouses, guild houses and other buildings, and represent a significant feature of Tallinn’s medieval architecture. On Estonian territory and elsewhere in northern Europe, this type of heating system was mainly employed in the 14th–16th centuries. In literature and archival documents several terms have been used to describe such devices: heat storage furnace, heat storage hypocaust, hypocaust, hot-air heating system etc. The dictionary definition of a hypocaust is an ancient Roman underfloor heating device. This is considered to be the predecessor of medieval heat storage hypocausts. In Estonian context (considering the absence of pre-medieval stone architecture) all of the mentioned terms can be used.

In the Roman Empire hypocausts heated the thermae and the villas on both sides of the Alps. During the Middle Ages, a similar but simpler heating system was used in large monasteries in the northern part of central Europe. A room called calefactorium was heated from below. It was used for warming the inhabitants, mixing ink, letting blood and other specific activities. When Christianity and the monasteries expanded further north, the weak points of the original hypocaust and similar devices became evident: it stayed warm only during heating and was not practical in colder climates. It is possible that in order to store heat, the monastery builders began to pile up loose stones on top of the firebox, possibly imitating the custom of indigenous people living along the Baltic Sea. A furnace perfected in this manner — the heat storage hypocaust — was widespread in northern Europe at the time (14th–16th c.). It became prevalent in heating monasteries and strongholds, but was also used in dwelling houses. Literature published about such furnaces in Estonia and elsewhere in Europe is scarce. The relevant essential texts are articles by Andres Tvauri, examining the hypocausts in Estonia, and focusing on archaeological finds in Viljandi and in Tartu. Tvauri has also written about how Estonian and Baltic German researchers became interested in medieval heating systems and has described the functioning of the heating system. Probably the most thorough publication on the subject so far is Klaus Bingenheimer’s impressive Die Luftheizungen des Mittelalters, which presents an overview of its history and development, as well as listing, in a catalogue form and by type, all known hot-air heating devices in Europe (including Estonia). Heat storage hypocausts have been found in the basements of medieval buildings in several Estonian towns, and in monasteries and strongholds. More than half of the one hundred Estonian medieval hot air furnaces pointed out by A. Tvauri are known to be located in Tallinn, and most of them are in the medieval Old Town. Despite relatively active research work carried out in the Tallinn Old Town during the past decades, there has not been a comprehensive study or even a clear overview of heat storage hypocausts.

Motivated by this situation, the aim of my research was to discover the number and current condition of the surviving medieval hot-air heating systems in the Old Town of Tallinn. One of the main tasks was to go through the archives in order to have an idea of the location of the hypocausts. As a result of archival research, published sources and on-site investigations, it was possible to determine the construction peculiarities and observe the changes in medieval hot-air heating systems over the centuries. A large part of the sources were reports about individual objects, architectural designs and structural projects. Here, I mainly relied on the National Heritage Board archives, which contain most of the documentation concerning restoration and research of buildings in the Old Town. Construction work in Old Tallinn during the last century is relatively well documented. In addition to what is recorded in construction documents, buildings have been scientifically researched and documented since the 1960s. Conservation and restoration reports often describe the medieval heating systems in the building. The Tallinn City Archives (TCA) include historian Rasmus Kangropool’s notes in manuscript form, with his observations on hot air furnaces. In the cases where the information given in heritage conservation documentation was unclear about the medieval heating system, the floor plans of the buildings still made it possible to locate the position and determine the existence of (the remains of) hypocausts. When the medieval floor plan was more or less clear, it was also possible to guess the location of the hypocaust: in the wall area between diele and the heated dornse. The location was more difficult to guess in cases of less widespread types of buildings. Yet it became clear that this kind of heating was intertwined with the building traditions and the way of life in the 15th and 16th centuries.

One of the most significant periods in the development of the Tallinn Old Town was the 15th century.
(1) Locations of the heat storage hypocausts on the plan of Old Tallinn. Compiled by Kaarel Truu

(2) Remains of a heat storage hypocaust in the tower of Tall Hermann on Toompea; an arch of the furnace and the firebox are visible in the photo. Photo by Villem Raam. Tallinn Culture and Heritage Department Archive

(3) Section of a heat storage hypocaust. Drawing by Teddy Böckler
The town wall and street network were completed, and the houses of the town dwellers acquired the size and proportions which still distinguish many of them today. Despite later reconstructions, the main features and floor plans of medieval buildings are recognisable. A large part of this heritage has survived, and has been researched and documented. The heating system consisting of a heat storage hypocaust and a mantel chimney was the most common and perhaps the only possible solution in a dwelling. The main floor of the narrow stone house with a gable end facing the street usually had two large rooms: the diele and dornse. On the whole, the diele was a living and working room and the dornse a bedroom. Underneath the main floor was a basement, which, in addition to other rooms, accommodated a room for the heat storage hypocaust (generally underneath the mantel chimney) and the furnace itself (underneath the heated room). Warm air rose into the room (dornse) through a special stone slab with holes in it, which was normally located on the floor level or a bit higher. The diele was heated by an open fire under the mantel chimney. Many buildings have retained parts of the medieval heating system: massive chimneys stretching through the floors are striking features in the roofs, and some basements contain hypocausts almost unchanged since they were last heated.

Reconstructions in Tallinn until the 19th century seem, on the whole, to have been quite sparse. The main structural elements (walls and floors) were largely left untouched. The moderation of changes must have had a number of reasons; this tendency has also been pointed out (in a somewhat different context) by Krista Kodres. Since the 16th century, in many buildings, a new type of heating devices — tiled stoves — was integrated into the existing system as well. The stoves were often built right on top of the hypocaust slab and connected to the mantle chimney by existing flues. Reconstruction of heat storage hypocausts started basically straight after they were abandoned as heating systems. In the house at Raekoja plats (Town Hall Square) 13, a bread oven with a dome-shaped ceiling was built inside a hypocausts body. A similar find was discovered in 2014 at Lai 38, where the furnace in the basement was closely examined. There are no major differences in today's use of heat storage hypocausts and their heating rooms. When the body of the furnace is empty, it can be used as storage space. A few furnaces have been turned into corridors by breaking through and connecting the heating room and the basement underneath the heated room. Another popular method is to establish a toilet in the heating room or in the body of the furnace (e.g. in Rataskaevu 10 and 16). The massive body often has an important structural task in the building and therefore it is the most durable of all the furnace parts.

The inner construction of a hypocaust — brick arches and cobblestones — have only rarely been preserved, because these parts burnt out over the years and had to be regularly replaced, and had no function after the hypocaust lost its original use. Some furnaces have nearly wholly preserved (Pikk 60 and 66).

Such a wide use of the heating device in medieval Tallinn seems to be quite exceptional in the European context, or maybe the Tallinn furnaces have just preserved remarkably well and can now be properly documented. The remains of 90 heat storage hypocausts have survived in the Old Town of Tallinn, and at least six have retained their inner structure as well. Besides Tallinn, Lübeck is the only other medieval town which has numerous remains of heat storage hypocausts, 19 altogether.

It is worth mentioning that according to the above-indicated Bingenheimer, 206 examples of various types of medieval hot-air heating systems have survived in all of Europe At least 87 of them are heat storage hypocausts comparable to those in Tallinn. Bingenheimer has provided an excellent overview of the research carried out by German authors. The difficulty of getting information about other countries may have been due to the language barrier or modest circulation of published materials (the data regarding Estonia mainly came from Voldemar Vaga’s article in 1961 about the medieval houses in Tallinn). This study mapped the remains of furnaces that had been found by different research projects since 1960s. In the future, it may be possible to focus a more thorough investigation on specific furnaces. The heat storage hypocausts in Tallinn are similar in structure and, on the basis of currently known differences, the furnaces cannot be dated or clearly grouped. Investigating the existing heating systems and their parts can provide information which could help with the question of dating the hypocausts. Considering the peculiarities of the medieval dwellings in Tallinn, it can be said that the existence of numerous heat storage hypocausts is not surprising, although the number of (partially) surviving hypocausts is still impressive in the European context.

3. A. Tvauri, Late medieval hypocausts with heat storage in Estonia, p 53.
4. Tallinn City Archives, R-242-1-270, 90.
FIVE YEARS IN THE LIFE OF A MEDIEVAL CHURCH: 
THE CASE OF PÖIDE

Juhan Kilumets and Anneli Randla

The fate of the once largest and one of the most elaborate medieval rural churches in Estonia, St Mary’s in Pöide, has varied over the centuries: from a power centre of the bailiffs of the Teutonic Order to an ordinary parish church, from destruction by the Soviet army after WW2 and decades of abandonment to the re-establishment of the congregation in the 1990s. Sadly, the church is way too large for its present ecclesiastical use. On the other hand, in recent years the church has acquired additional functions, including education and research. It has become the on-site testing ground for conservation methods, international cooperation and interdisciplinary research. And the church has revealed some of its well-hidden secrets as a reward.

Looking back at the period of 1212–2017, a lot has been achieved in just the last five years. The most important of the work done on the church is a new roof. The previous roof dated from 1959 and, having been left without any maintenance, it had deteriorated so badly that rain water was running straight into the walls. As an homage to the late engineer Heino Uuetalu, who designed the timber frame of the roof construction in the 1950s, the new roof was built according to the principles he followed. It took three years to complete (2012–2014).

The next step was to make windows for the building. For decades, the window openings in the nave and tower were covered with temporary hatches, which were neither draught- nor waterproof and left most of the church in complete darkness. The stained glass was designed by the late architect Illar Kannelmäe in 2008. Starting in 2015, every year a window or two was added and by the summer of 2017 the church had a complete set of windows. In addition, all openings in the tower were restored and covered with new hatches.

After the windows, the portals and doors followed in 2015. Since the portals had suffered damage over the centuries, it was a complicated task to strike a balance between keeping the history of the portals visible, while making them stable and usable. The southern portal required more repair of the joints and the consolidation of deteriorated surfaces; the northern one was in a better state but was missing a whole block, which was replaced by a simple limestone cube, which has yet to be given a distinct shape.

In order to study the historical appearance of the church and the condition of its walls, vaults and rendering, the whole church was thoroughly investigated and documented. The mapping of plaster had a prelude in 2003, with an international workshop which set up the methodology. The topic was taken up again in 2012, when the entire church was surveyed. During an international workshop attended by conservation students from Estonia, Finland and Sweden, the mapping was carried out and different conservation concepts were discussed.

A part of the student workshop was the investigation of the painted surfaces in the church. Along with documenting all visible remains, new discoveries were made. An extraordinary painted rose window was found on the northern wall of the chancel. Revealing just a small part of it was enough to digitally reconstruct the entire composition. In 2015, fragments of another mural depicting a different kind of rose window were discovered in the nave.

(1) St Mary’s, Pöide. New roof construction in progress in 2013. Photos by Peeter Säre (2) New roof in 2014
This meant that in the 13th century the church had most probably been decorated with two elaborate faux windows in addition to the real tracery ones.

But the real surprise came the following year, during the emergency conservation of a piece of plaster dangerously hanging from the vault in the tower bay. A funny face, as if drawn by a naughty schoolboy, emerged from underneath several layers of whitewash on the boss of the vault.

In 2016, another international workshop was organised by the Estonian Academy of Arts to test conservation methodology: the use of nano-lime for the consolidation of stone, plaster and architectural surfaces. The workshop was led by the chemist Karol Bayer and the conservator Jan Vojtechovsky from Pardubice University in the Czech Republic. The participants came from Estonia, Latvia and Norway, and included both conservation students and professionals. As a result of the workshop, the medieval baptismal font of the Pöide church was conserved a few months later using the tested methodology.

The most recent workshop took place in June 2017 to tackle another problem of the church: the detachment of the plaster from the walls and vaults. Different grouting techniques and materials were tested under the guidance of the conservator Paolo Pagnin from conservation company Lithos in Venice and Jan Vojtechovsky by students and professionals from Estonia, Latvia and Norway. A suitable method for fixing loose plaster was developed and parts of the detached layers were consolidated.

Thus little by little the church is changing from a near ruin into a welcoming and functioning building again.
(6) Painting on the tower vault (7–8) Grouting workshop in 2017. Photos by Kaarel Truu
THE BEAUTY OF A CULTURAL TEMPLE BROUGHT TO LIGHT AGAIN: EXTENSIVE WORK IN THE MAIN BUILDING OF THE VÄÄNA MANOR

Silja Konsa

The main building of the Vääna manor is among the most remarkable early Neo-classical manorial structures in Estonia. Construction began in 1784 and was completed in 1797. That period was characterised by a building boom and the manor lords wanted to have increasingly stylish houses. Vääna was owned by the Stackelberg family, who imported a master builder from Italy, hence the striking difference in architecture compared to other buildings of the time. The house is low and long, with rotunda-shaped pavilions at the wings. The composition of the whole building is balanced and well structured: the long vertical bulk is articulated and framed by projections and pilasters between windows. The building looks elegant, finished and grand. Until the land reform in 1919, the Vääna manor belonged to the Stackelbergs, and since 1920 a school has operated there.

THOROUGH PRELIMINARY WORK GUARANTEED A GOOD RESULT

The evident devotion to art and culture at the manor and the remarkable architecture of the buildings were reasons to believe as early as the 1990s that many modest looking rooms had been more elaborately decorated before. Research in 2012–2013 on the finishing layers in all rooms indeed led to the expected result. The work was undertaken by OÜ Mõisaprojekt in a manner and at a level that successfully uncovered the previously hidden historical wallpapers, paintings and fragments of the original floors. In 2013, the research was followed by drawing up a suitable design project for the entire manor house. It is essential to stress that the construction project of restoring an outstanding architectural work must be compiled by a specialist with an excellent sense of architectural language who knows how to emphasise the value of cultural heritage and can add, if necessary, a construction or detail that suits the context. The design projects under discussion met those criteria. The restoration required public procurement. The term does not exactly have a good reputation, especially in regard to historical buildings, where work can easily take more time, material and skills than originally planned, which is exactly what occurred in Vääna.

Restoration started in spring 2014 and lasted until late autumn 2015. The planned work was extensive and the budget was tight: updating the entire technical infrastructure, replacing stoves with central heating, changing the roof covering, together with repairs to the supporting structures, and full restoration of facades and interiors. At the same time field investigations of the historic constructions and decorations were being carried out. The amount and complexity of the work required professional organisation.

THE WORK VOLUME INCREASED CONSIDERABLY

The restoration of the facades began in spring 2014. The first task was to remove earlier cement plaster repairs and recent loose plaster. Next wall surfaces and architectural elements were repaired and this continued the following summer with plastering and finishing work. The first hitch happened after cleaning the walls and cornices with abrasive blasting, when it turned out that almost the entire basement floor and the sandstone partition cornice were covered with concrete-strength cement plaster dating from the late 1980s. The builders proposed not removing the cement plaster, because the plans had stipulated much less work in this section; they also thought that the back of the cement layer was dry and there was a risk of ruining the stone surfaces in the course of their work. However, the heritage conservation supervisor, the architect Jaan Jõgi argued that the principal building design documentation clearly stated removing cement plaster from the facades; this argument relied on engineering-physical considerations and widely recognised principles of restoring a historical building. We should add here that the architecture of the Vääna manor is extremely demanding and its restoration requires suitable technology for the valuable building and special skills. The supervisor remained firm and thus the whole cement layer had to be removed from the sandstone cornice. In order to work out a suitable method, a two-day workshop was organised in cooperation with a speciality group from the Hiiumaa Vocational School. Under the supervision of Hans Lindberg, the tough cement layer was removed mechanically with chisels and hammers so that the stone surface and even in some places the initial finishing plaster were maintained. After the blasting of the facades and manual cleaning, the socle surfaces were plastered with hydraulic
The front façade of the manor house after restoration in 2015. Photo by Peeter Sääre

Back facade after cleaning with abrasive blasting in 2014. The basement floor and cornices are covered with tough cement plaster. Photos by Silja Konsa

Workshop in 2014. A tough layer of cement plaster is removed mechanically

Perfectly restored balcony and string course. The quality of the plastered roof cornice is much poorer. Photo by Peeter Sääre

Stately rooms before restoration. Photo by Silja Konsa
lime mortar. The walls of the main floor were plastered during the following spring and summer with lime mortar and the facades were covered with lime paint. The plastering work on the smooth walls went well, but the plastering and finishing of decorative elements with complicated profiles that required specific restoration skills occasionally proved too much for the builders. Unsuccessful work had to be redone repeatedly. The plastering of the string course was finally done to perfection, whereas the plastering of the sandstone elements — the roof cornice, bases and capitals of half-pillars and pilasters — was in the end not really good enough for the demanding architecture of the building.

FROM ROOF TO BALCONY
It was decided early on in the project that the technically satisfactory roof covering would be replaced. The reasons included the insufficient coating of the eaves, the weak fastening of the single lock welts and the unsuitably large sheets of metal. When the roof covering was taken apart, more problems were revealed: the underlying wooden support structures had not been repaired by previous builders-restorers. The covered structures had to be restored as well, in the same manner as the historical constructions. Relying on this principle, the damaged rafter ends were strengthened by wooden extension joints or replaced by quality timber, almost all pole plates and a part of the spaced boarding were replaced, and ceiling beams were installed. Almost all of the above-mentioned was extra work, but necessary in order to follow good building customs and high-standard restoration principles. The exterior restoration included the replacement of the back balconies, which had crumbled and disintegrated over time. The figurehead-shaped sandstone corbels of the small side balconies of the back facade and the floor resting on them had survived, but the functionally and architecturally important balustrades were missing. The balconies were restored according to historical examples. The completed work has received good marks in terms of the architectonic aspect; mention should especially be made of drawings that carefully followed the form canons of the Tuscan order of the balcony pillars, and pillars carved according to these drawings in Orgita dolomite. In terms of the integrity of external space and creating a functional extra area for people at the school, the restoration of the back balcony was well justified.

THE GEMS OF THE INTERIOR REVEALED
The interior restoration work was based on maximum preservation of historical substance, as well as adapting everything for the school. Enfilade, stylistically typical of its era, was retained, and the central formal hall, previously used as a classroom, was restored.

All manor-period utility rooms on the basement floor were again made usable: the cloakrooms, kitchen, canteen, classrooms and other rooms. A boiler was installed in the cellar, which had previously been empty, and rooms for a manor museum were prepared. The interior architectural solution is dominated by early Neo-classical design, supplemented by later layers of the Gothic Revival period, thus reflecting the development of Estonian manor houses, as well as following the principle of authenticity. The author was indeed most surprised by the interiors. The general solution of the exterior and its details were visible, whereas the interior surfaces, covered as they were with later layers, were revealed during restoration as real gems. They held paintings from several eras, a fine collection of wallpapers and masterpieces of parquet floors. As this is a study environment, it will clearly have an inspiring impact on students. In sum, the restoration work was highly satisfactory, as all of the valuable original substance was preserved, conserved or restored. The additions are clearly new, visible but not dominant. Some things in a few formal rooms still need finishing touches, such as wall paintings in the western pavilion’s domed hall and displaying the wallpaper collection. An unusually beautiful and special cultural temple is once again legible in its former architectural and artistic language. The main building of the Vääna manor has regained a respectable place in our manorial architecture, as an excellent environment in which to study and grow in an educational landscape, as well as a beacon of identity for the local community.

NELE ROHTLA’S COMMENTS ON THE CONSERVATION OF THE PAINTINGS
Thanks to enormous effort and despite damaged surfaces, several early Neo-classical paintings at the Vääna manor were successfully restored. In terms of the building’s compact interior solution, it was crucial to restore the Pompeian style paintings in the central hall. The paintings emphasise the whole building’s magnificence, lightness and airiness: the trompe-l’œil painting on the wall opposite the windows depicts a portal flanked with columns and opens into a landscape with a bright blue sky, and on the end walls of the room the same landscape can be seen through the painted windows. The painting on the ceiling of the domed hall is a special gem by Paridon Jakob Neus (1797). The painting’s partially damaged plaster and paint were repaired and a small part of the painting was retouched. Unlike the ceiling, the wall paintings had been painted over, and thus required careful and time-consuming uncovering. The conservation of the domed hall and the central hall succeeded thanks to the sense of mission of the conservators, because it was here that the client’s understanding and financial backing mainly failed. Some Gothic Revival-style ceiling paintings were found and restored as well. The conservation of paintings was a success, but because of all the hurry at the end some of them were not properly finished: hopefully the restorers will be given a chance to finish them in due course.
Domed hall of the western pavilion in 2016. Photos by Peeter Säre

Former ante-room after restoration in 2016. The historical parquet is displayed on the wall.
A small state manor on the coast of western Saaremaa bears the name of the neighbouring island of Gotland but the manor has no direct ties with that place. The manor borrowed the foreign name and gave it back later.

ABOUT THE NAME AND THE HISTORY OF THE NAME

Until the Northern War, the small villages and separate farms of the future Gotland manor were located on the southern hinterland of the Lümanda medieval bishop’s manor and the Swedish-era state manor. The post Great Northern War plague and famine emptied the country. The empty hinterland of Lümanda combined with a couple of separate land properties of the neighbouring manor to form a state manor. This was somewhat exceptional for Saaremaa in the first quarter of the 18th century. A manor centre and manor house were built instead of a Gotland farm or a group of farms (Gesinde in German) on agricultural land situated on the bend of a river. According to historical records from 1645, the area was still populated by Swedes. The whole manor was called Gotland after the farm. Gotland was first mentioned as a place name in Saaremaa in 1368, when the Swedish king Albert signed a trade contract with the Gotland community, and with Lahetaguse and Pajumõisa. This refers to the existence of the Gotland settlement of coastal Swedes on the bend of the river around the manor centre as early as the 14th century.

According to Carl Russwurm’s major work on Estonian Swedes Eibolfolke oder die Inselschweden an den Künste Ehstlands und auf Runö (1852), the coastal Swedes of western Saaremaa had integrated with Estonians before the Great Northern War. By the beginning of the 19th century, when he was writing his research, Swedish heritage was only apparent in the area in its slightly different attire, a few place names (Gotlandi and Rootsküla) and memories of distant ancestors who were said to have spoken a different language.

Today Kotlandi village, situated on the coast a couple of kilometres south-west of the manor centre, includes the villages Kavi and Hütza (today Kaavi and Hütsa), which used to be situated on the territory of the manor, and a couple of ancient coastal farms. After the disappearance of the manor and the manor parish at the end of the 19th century, the people began to call the district Gotland or Kotland after the old manor. Kotland is the Estonian spelling of the name of the manor and the manor parish of Gotland. Both ways of spelling — with G as well as with K — were used in the Estonian documentation in the manor era. Hence the manor has given the borrowed Estonian name back to the neighbourhood and the manor house is called the manor of Kotland.

The manor of Kotland was one of the first in Saaremaa to switch to cash rent and this was probably one of the reasons why the running of the manor passed over to the Orthodox church of Lümanda in 1869.

The Kotland manor was one of the first in Saaremaa to switch to cash rent and this was probably one of the reasons why the running of the manor passed over to the Orthodox church of Lümanda in 1869.

The peasants of the manor and the Hütza house of prayer paradoxically formed the main centre of the movement of the Moravians of western Saaremaa in the 18th and the 19th centuries, a firm stronghold of the Lutheran religion. The economic Orthodoxification did not really succeed among the local peasants, but the manor house was used as an Orthodox remedial school in the last quarter of the 19th century.

THE MANOR COMPLEX AND THE MAIN BUILDING

The manor centre and the main building of Kotland were built at the beginning of the 18th century but the heyday of the manor was the first half of the 19th century. A map from 1793 depicts a manor house and just a couple of other buildings, but half a century later the manor included as many as 15 outbuildings, with 269 peasants living on its territory. The manor rented approximately 1115 hectares of land to the peasants and cultivated 123 hectares of that itself.

Besides rent and land cultivation, the manor made most of its income from processing and trading agricultural production, and offering services. The manor had its own threshing farms, a cowshed, a dairy farm, windmills, a pub, stalls, a little distillery and a dairy. Only a few archive drawings and foundation traces remain today.

The main building of Kotland stood empty for years and even in 2011 it was like a grey Cinderella hidden in the lilacs. The building was considered to be so worthless on the real estate market that the sales advertisement was in the same section as parcels of forests.
(1–4) Kotland manor before the beginning of the restoration and toward the end of the restoration. Photos by Raili Nugin (5) Kotland manor after the completion of the restoration in summer 2014. Photo by Karl Nugesen
The new owner started off by cleaning the manor house and the overgrown surroundings. Then an examination of finishings could commence. Surprisingly, Cinderella’s grey smock hid a light yellow dress underneath: on the interior cavetto vault there were beautiful stencils and brown, green and pink tones appeared on door panels.

In order to determine the age of the manor house, a chronological examination was performed. There were several contradictory details regarding the time of the construction of the manor house. A reused chimney stack brick with the date 1818 had been laid in the base, whereas the manor building can be found in the same location on maps from 1793. The style of a typical urbaltisch manor house was supported by the high hip roof, mantel chimney and relatively symmetrical plan of the building. At the same time, the mantel chimney was smaller than usual and it was located on one side of the building, thus making it possible to apply classical designs for festive rooms placed in an enfilade. The examination found that the last year of expansion was 1839–1840.

The building plan and building-related papers of the Kotland manor, which were found in the Latvian State Archive of History after the examination, proved that the current manor house was built in 1844.

It is likely that soon after founding the manor in 1716, the first wooden manor house, which was constructed in the urbaltisch style and was much smaller than the current one, was built. It probably underwent major renovation in 1815–1818, and the chimney brick dated 1818 must come from that period of time. When in 1844 the old manor house was replaced with the new larger one, the old, dated chimney brick ended up in the base. Other details of the old house, e.g. inner doors, ceiling beams and parts of the wall of the mantel chimney, were used in the construction. The construction date of the current Kotland manor house is considered to be 1844.

RESTORATION

Restoration work began in the spring of 2013 and it lasted for a year and a half. First the old wooden cladding and the preserved windows and doors were carefully removed. The decayed beams were replaced by jacking up the beam body and adding one or two rows of new beams at the bottom, which were groove-joined with the old logs. The wall log diameter is seven inches and the logs are joined together without any hidden pieces.

A couple of beams stretching all through the house had to be jacked straight, as the middle partition wall had not supported them sufficiently. It was thus possible to push back a 8–10 cm sag in the beams. One missing interior wall was built as a vertical log wall according to the specific conditions of the building and the drawings.

The roof construction was supplemented by a taller structure with supporting rafters and added insulation. As a result of this, old rafters are visible inside a thatched roof building. Only the proportions of the eaves box were changed to some extent, making it higher than the original. The eaves box had to be levelled and in some places levelling blocks of up to 10 cm in diameter had to be put under the boards.

The insulation of architectural monuments always represents a compromise between the original constructional solutions and contemporary needs. In the case of Kotland, insulation and soundproof constructions were added to the floors, ceilings and windows. A special solution was made for the walls: the exterior log walls were covered with a breathing bottom cover, and the interior log walls were insulated with 50-mm diameter stiff reed boards, with the wall heating pipes on top, and were covered with clay plaster. Damp rooms and the ceilings were lime plastered.

In finishing the exterior walls, the 30-mm matched boards that had been carefully removed were utilised. The exterior boarding had perfectly survived for 170 years and it will survive for decades more if properly maintained.

The building gained more character through such additions as shelters on ironwork constructions. One of
(7–8) Mantel chimney before and after restoration, including a built-in kitchenette. Photos by Raili Nugin

(9) Dolomite chimney stack characteristic of Saaremaa, with a traditional pattern bearing the year of completion

(10–11) Outer door of the manor under restoration and completed
these protects an original 170-year old board door. On the side of the dolomite chimney stack is the date 2013, marking the time of its construction. It is an old Saaremaa custom to engrave the date of the construction of the chimney, not the building itself. The custom dates from the years 1860–1880s, when large numbers of old barn-dwellings began to have chimneys added. The ridge of the roof is made from two-layer tarred roof boarding with guttering. This kind of ridge is a bit grander than traditional roof wickers.

The interior design of the Kotland manor uses traditional finishing materials that agree nicely with historical interiors. Walls are plastered and covered with traditional glue paints produced in a series by the Estonian company Maalermeister.

A small original of a stencil that was discovered in the process of the examination of the finishings was cleaned and attached in one of the halls. Copies of the original pattern were made for the other walls. In another hall, where it was impossible to keep the original pattern exposed, a copy of the pattern was made using original tones. In the third room, a new pattern was painted referencing the characteristic paintings of the era. The tones of the walls were chosen according to the findings of the examination of the finishings. The colours were mixed on the spot.

Restored windows were provided with old lever bolts. The missing hinges, latches, door handles and other details were replaced on the basis of historical samples.

Characteristic of Saaremaa, the floor of the main entrance hall is painted. The painting depicts a simple grid. There is considerable information about painted floors in Saaremaa; for example, there is a Tzarist Russian era photo of the painted floor of the Taaliku manor and the floor painting of the second floor hall at the Vohkse manor has been preserved.

In the bathrooms, there are old cast-iron free standing bathtubs. There is a kitchenette in the old mantel chimney; its black finishing layer has been preserved, reminiscent of the original function of the room as a “black” kitchenette. The kitchen furniture was made of recycled material, including shelves made of the wood grown in Sõrve, with traces of the fierce battles of the World Wars.

The interior design concept of the Kotland manor is a success, providing a supportive solution to the preserved historical details. All contemporary conveniences have been installed in the building.

Cinderella has become a princess!
The Keila-Joa manor was something of a Sleeping Beauty for a long time because it was at the disposal of the Soviet army for the entire second half of the 20th century and thus somewhat hidden from the public. This manor is important for many reasons. The first reason is its role in the history of Estonian architecture, because the Keila-Joa manor was one of the first of its time to employ a language of form that differed from the canons of Neo-Classicism. Secondly, the position in the tsarist state of Lieutenant General Konstantin Alexander Karl Wilhelm Christoph von Benckendorff, who built the ensemble, is important: most of the reactionary steps in the domestic policy of the era of Tsar Nikolai I are associated with him. Benckendorff had risen to become commander of the guards’ corps in 1819. He led a cavalry detachment in suppressing the Decembrist uprising and later served as a member of the commission investigating the uprising. In June 1826, Benckendorff was named chief of the gendarmerie and head of the tsar’s third chancery. He headed the surveillance of revolutionary activity and the suppression of rebellions until late in his life.

He was also responsible for coordinating censorship and was one of the tsar’s closest advisers and the most trustworthy in carrying out his orders. Benckendorff, who purchased the Keila-Joa manor for 65,000 paper roubles in the autumn of 1827, is described in the recollections of his contemporaries as an amiable, educated and witty man. His appreciation of beauty and fine sense of taste are often noted. It was during his time that the ensemble consisting of numerous buildings was built and the manor’s splendid park was designed. The owner’s high-ranking position, and his income from Siberian gold mines and the 34,000 dessatines of land in Bessarabia given to him as a gift from the tsar allowed him to build a manor that was one of the most remarkable in Estonia in terms of its wealth and luxury.

**THE NEW MANOR HOUSE AND ITS ARCHITECT, HANS STACKENSCHNEIDER**

The style of the manor’s main building was chosen to fit in with the landscape, and no doubt also with the fashions and trends that prevailed at that time in Europe: the manor was intended to be a medieval knight’s nest. The design plan was commissioned from the young St. Petersburg architect Hans (in Russian style Andrei Ivanovitch) Stackenschneider (1802–1865).

He was still a relatively unknown architect at that time, having worked for only a few years in the committee for building St. Isaac’s Cathedral in St. Petersburg, but later he developed into one of the central figures of Russian 19th century architecture. Stackenschneider, whom the architect Auguste de Montferrand had probably recommended to Benckendorff, began designing the manor in the autumn of 1831 according to earlier information, but according to information that has recently come to light, he evidently had already started in 1828.

Various sources indicate that Stackenschneider was initially asked to renovate the façades of the existing (according to some sources wooden) building and to give them a modern and more noble appearance, but other sources indicate that an entirely new building was built in a new location. The claim that the old building was reconstructed derives from the respected researcher of Stackenschneider, Tatyana Aleksandrovna Petrova, who has argued that Stackenschneider used earlier foundations for the manor’s main building and therefore he could not change its layout. The historian Aleksandr Pantelejev has expressed doubt that this claim is true. A considerable amount of graphic material on Keila-Joa has survived, together with recollections of contemporaries who had visited the manor at different times or had lived there. Additionally, there are written materials that were published later, many of which also contain contradictions and raise unanswered questions.

In Elizabeth Rigby-Eastlake’s book of memoirs *Letters from the Shores of the Baltic* (London, 1848), the author describes how the manorial lord Benckendorff’s wife Jelizaveta explained to her guest that the location of the new manor house was selected for its beautiful views of the waterfall. Thus the claim that the current main building is a reconstruction of an earlier building is probably false. This building, designed at the beginning of his career, was one of the first in which Stackenschneider placed his primary emphasis on exotic Gothic Revival décor. The Keila-Joa manor house is also one of the first
new buildings designed in Gothic Revival style in Estonia. The building’s ground plan was still Classical in principle, meaning that it was almost symmetrical in relation to its central axis, but the doors, windows, lighting fixtures and wall panelling were all in Gothic style, as were the pointed arch windows, the machicoulis at the upper portion of the tower, and the openwork baldachin roofs made of cast iron. Mårjamaa marble was used in the façade décor and the Benckendorff coats of arms were woven into the pattern on the foyer columns (the work of the Tallinn stonemason Johann Gottfried Exner). Coats of arms were also on the pediments of the main façade. The house-warming party for the manor’s main building was held on 27 May 1833, according to the old Julian calendar, and was attended, among others, by Tsar Nikolai I and his entourage. Thus about eighteen months passed from the start of the design process for the main building until the house-warming party. Such a short construction period, and the field research work carried out later on the manor house (which indicates that the construction work was carried out at a very high level of quality) affirm that the builders evidently were not short of resources. The tsar was so pleased with what he saw that he commissioned from Stackenschneider an extension based on the example of Keila-Joa for his ‘Cottage Palace’ summerhouse in Peterhof, built according to the design by Adam Menelas (Menelaws), who was the architect for the whole Peterhof complex.

A little mathematical game is hidden in the plans for the main building. Namely, the dimensions of the length, width and height for both large halls on the first storey correspond exactly to the golden ratio. Similarly, the length of the “column room” is almost exactly the same as the width of the large halls. Quite detailed material about living conditions at the manor is available from the heyday of the Keila-Joa Manor. Thus, a detailed list of property found at the manor has been preserved from 1851, and a registry of guests survives. Prince Sergei Volkonski also remembers his time at Keila-Joa as a “carefree picnic, a great vagary”. Alongside descriptions of conditions, some information can be gleaned from his memoirs about the rooms and interiors of the building. For instance, it turns out that the prince’s grandmother’s bedroom was situated with its windows facing the waterfall and a door led from it to the tower. The furniture was Gothically white and black. The parquet floor of the room with columns that was situated beside the banquet hall formed a chessboard grid made of oak and bog oak. A large bedroom was situated above this room. The waterfall and the “cabin”, or a Russian-style summerhouse on the opposite riverbank, could be seen from the window of the study. Something is also known about the furnishings of the main building from earlier times during the era of the Benckendorffs according to enumerations of furnishings.

Alexander von Benckendorff died on 11 September 1844 on a ship that was sailing from Amsterdam to Tallinn.

RESTORATION CONCEPT

The main building of the Keila-Joa manor stood vacant after 1994, when the Soviet army left Estonia. The tower’s serrated parapet, the balcony of the main façade, the chimneys and most of the elements of the exterior décor had been destroyed. All of the windows and doors had been replaced, together with their frames, during the Soviet era so that nothing remained of the original windows and doors. The building’s interior layout had also been partially altered. Rooms were divided by partition walls. The stoves and fireplaces from the older construction period had been demolished. A new sheet metal roof had been installed on the main building in the 1990s.

Restoration plans started being drawn up in the late autumn of 2010. At that time, the building’s load-bearing constructions were in reasonably good condition but most of the décor and details had perished. Surviving graphic material, photographs and descriptions in the form of memoirs and other documents were consulted in order to restore those details. The owner wished to restore the manor house’s external appearance as close as possible to its original appearance. Museum rooms were planned for the cellar to house an exhibition on the manor’s history. The design for the first-storey rooms was planned in the style of the 1830s, preserving as much of the original floor plan as possible. One- to two-room guest-rooms were planned for the second storey. One of the few changes was the conversion of the first-storey room situated between the main staircase and Benckendorff’s study into a small kitchen so that guests could be provided with breakfast and other such catering until larger catering rooms planned for the manor’s other buildings were completed.

While the achievement of the objectives set for the exterior seemed to be possible because this restoration was based on an abundance of surviving photographs and other graphic material, considerably less information survived concerning the interior. The primary material available for use was descriptions of the furniture and furnishings of the rooms, but there were almost no photographs whatsoever of the interior.

As seen from the angle of contemporary restoration theory and philosophy, this kind of, in a certain sense, conjectural restoration raised a number of questions, especially regarding the interior. In conflict with the provisions of the Venice Charter, the differentiation between surviving original details and details reconstructed on the basis of analogues or elements restored on the basis of Stackenschneider’s relatively difficult to read sketches was expressly abandoned.

Work proceeded step by step. Those elements were designed first for which original details or Stackenschneider’s more or less legible sketches and vignettes survived. The employment of the latter was accompanied by the uncertainty of whether such details were also actually to be found in the interior, or whether they merely reflected the architect’s vision.
Barrel vaults running in an east-west direction were discovered beneath the western terrace in the course of the work. No information or traces were found concerning whether these small rooms had ever been used, or if they had been connected to other cellar rooms. It was decided in the course of the restoration not to open up the vaults beneath the terrace or to connect them to the cellar space. The vaults were conserved and sealed off. Photo by Allan Strus
A walled-in window opening in the study wall. When the plaster was removed from the walls of Benckendorff’s study, this window opening walled up with bricks was discovered in the eastern wall. It was identical to the other window openings in that room. Fragments of the stucco décor that surrounded the opening had also survived. The window was opened up in the course of restoration as an opening that had for some reason been walled up at a later stage of construction. In 2014, the historian Aleksei Kraikowski found Count Benckendorff’s correspondence with his wife, in which the count during a trip abroad asked his wife to see to it that his study window was walled up to prevent wind from blowing in through the window when he sat at his desk. Photos by Allan Strus

A cast iron balcony girder discovered when the cinema room was demolished. A little cantilevered balcony supported by cast iron girders was originally on the building’s northern façade. It was demolished by Soviet military personnel when they built the room to store cinematic equipment. When the cinema room was demolished during the restoration, both of the cast iron balcony girders and the cast iron cornice, which had originally rested on them but was by then partially broken, were found under the cinema room floor. Due to constructional considerations (primarily due to the complicated nature of repairing cast iron details and castings), it was decided to restore the cantilevered balcony in its original location and form, but in such a way that steel beams at the plane of the inserted ceiling extending out of the exterior wall were used as girders. A thin slab of reinforced concrete was poured over them. The original cast iron girders and cornice were installed in their original positions, but after the end of the restoration they were no longer load-bearing elements.

It was known that the Keila-Joa manor house had, to a great extent, influenced the interiors of the extension of Peterhof’s Cottage Palace and, for this reason, in quite a number of instances, their example was used as the basis for restoring the Keila-Joa manor house’s interior architectural design. When it was time for the interior design plan to be drawn up, the paint research on the interior walls had been conducted, but large-scale demolition work had not yet begun. Thus, the correctness of the approach relying on the “Peterhof parallel” was confirmed only in the course of the restoration work. Namely, walled in dolomite capitals, one full column and a half column were found that were almost identical to elements preserved in Peterhof.

In addition to surviving carved stone details, the parquet patterns in some rooms (the ‘music room’ and the ‘column room’), and the design for the furnishings of the second storey were based on Stackenschneider’s sketches. The sketches also provided a great deal of assistance in designing the ceiling geometry and stucco décor for the ‘music room’ and the ‘vase room’, the vase room dado and the door openings in the music room, the jambs of the door openings and the memorial coats of arms that had been placed above those openings. The sketches were useful in designing the plating for the western terrace of the exterior. The design of other details is based on comparison with structures characteristic of the era and borrowing from them.

RESTORATION WORK
Interested persons can obtain more precise information concerning the decisions made and the technical solutions used in the course of the restoration from the report on the restoration work. Some of the discoveries made in the course of the work and some of the questions that arose, a few of which remain unanswered or were answered only after the end of the restoration work, deserve attention (see the photographs). The fact that a more complete and integral final result is sometimes produced by an approach in which the aesthetic and visual correspondence to the original is considered more important than the exposition of “authentic material” became a valuable experience for the restoration project architects, in addition to confirming their convictions. The differentiation between new and old was abandoned since it seemed forced in the given context. The customer wanted to try to restore the situation or moment that prevailed in the manor at the time of the house-warming party in May 1833. Even without additional references, it is clear to the art historian or conservation expert where the boundary lies between the original and the restored or copied on the basis of analogues. The 3D scanning of the original dolomite capitals preserved in the interior and the copies of the missing capitals prepared later using the CAM milling machine clearly differ from the originals. In these cases, the restorers expressed their “own era”.

BUILT HERITAGE

It was known that the Keila-Joa manor house had, to a great extent, influenced the interiors of the extension of Peterhof’s Cottage Palace and, for this reason, in quite a number of instances, their example was used as the basis for restoring the Keila-Joa manor house’s interior architectural design. When it was time for the interior design plan to be drawn up, the paint research on the interior walls had been conducted, but large-scale demolition work had not yet begun. Thus, the correctness of the approach relying on the “Peterhof parallel” was confirmed only in the course of the restoration work. Namely, walled in dolomite capitals, one full column and a half column were found that were almost identical to elements preserved in Peterhof.

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Original windows or doors had not survived by the time that restoration work began. For this reason, their precise colours were not known. It could be discerned from old photographs that at least by the end of the 19th century and the outset of the 20th century, the colour of the window frames was considerably darker that the colour of the façade. The division of the historical window panes was also clearly visible. The new windows and doors were made of oak wood, stained and lacquered in accordance with what can be seen in historical photographs and other graphic material. The design of the cremone bolts, door handles and other accessories is based on the Benckendorff coat of arms motifs, and they were cast to order for the Keila-Joa manor house.

Elements that could not be copied precisely were imitated. In the current philosophy of architecture and restoration, copies and imitations are often considered kitsch, and the general aspiration has been to differentiate between the original and what has been reconstructed at a later time. The expression of the spirit of the age is valued in the case of every element in both old and new parts of structures. Yet there are also theories in which objects from all construction periods and parts of structures regardless of their aesthetic value are considered equally important. The result of the Keila-Joa manor house restoration work demonstrates that although the Zeitgeist theory described above and the equal treatment of elements from all eras can in certain situations be justified, it is not the only possible approach everywhere and always. There is probably not a single visitor who would yearn for the rod iron stair railing in the Keila-Joa manor house or the cinema room built of silica bricks on the building’s façade added by Soviet strategic rocket forces in the 1960s.

The manor house’s new owner and all of the other parties connected with the object must be thanked for the fact that now the decay of a unique building has been halted and it has been brought back to life, providing an excursion into the 19th century that is true to its era, hopefully equal to its original splendour.

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**COMMENT ON THE RESTORATION OF THE KEILA-JOA MANOR MAIN BUILDING**

*Sillja Konsa, Lääne-Harjumaa inspector*

There are two notable manors in Harju County that were not previously listed as monuments. Since they both belonged to the Soviet army, we did not have access to their territory to take a look at them, to say nothing of studying the buildings more closely. These are the Viimsi and Keila-Joa manors. My initial impression of the Keila-Joa manor’s main building dates from the mid-1990s, when the National Heritage Board started to consider its listing. The place was run down, and the building in its neglected condition was quite bland, but the manor’s cultural and architectural history, the surviving building volume, and expressive details provided the basis for recognising the building as a monument.

I started correspondence regarding assuring the preservation and maintenance of the building with the manor’s owner at that time, the Ministry of Foreign Affairs. Unfortunately, there was no response. In 2006, the property was transferred to State Real Estate Ltd, which not only set about implementing the precepts issued by the National Heritage Board, but also increasingly cooperated with us. A couple of times a year we discovered on site that the building had once again been broken into. The decision was arrived at to put the property up for sale.

The property was sold in auction in 2010. The new owner had familiarised himself with the manor’s history, and had the desire and vision to restore the complex. The close cooperation that has continually taken place since the acquisition of the manor should be noted. Firstly, remarkably comprehensive and thorough research, secondly, the owner’s great care and exacting approach, and thirdly, the top-notch quality of the restoration work have been pervasive from the moment the concept was worked out until its implementation.

Generally speaking, the focus of today’s cultural heritage protection is the conservation of monuments, with the main task of preserving the valuable strata of heritage. In the case of the Keila-Joa manor, where only a small part of the original remained and later additions were mostly from the Soviet era, other solutions were considered besides the conservational approach. A reconstructive approach was arrived at on the basis of the situation described above, was based on the manor’s cultural and architectural history, and the results of field, archival and bibliographical research. Over the course of this research, descriptions by contemporaries, the architect’s own original designs, and other iconographic material was found that provided quite precise information on the appearance of the building at the time of its construction.

The second and third key elements — the owner’s care and top quality work — functioned together.

The owner was present at the restoration site almost every day: at work meetings, conducting tours for interested persons, organising work to fix up the site and personally participating in this work. Restorers were hired purely on the basis of the best available skills. Any work rated as merely “satisfactory” was redone.

The main building of the Keila-Joa manor has been restored in a dignified manner befitting the building. Both the process and its result have been instructive and important.
BUILT HERITAGE

SCHLOSS FALL
(the German name for the manor house)
Andrei Dvornjaninov, National Heritage Foundation OÜ

The Estonian writer Eduard Vilde wrote in 1887 in the newspaper article ‘Lahtised lehed minu päeva-raamatus’ (‘Loose Pages in my Diary’) about Keila-Joa: ‘And probably no other place can really be found in Estonia like this place, which is so rich in the beauty of nature’. This is probably the first writing in Estonian about Keila-Joa. Living a few hundred metres away in Meremõisa myself, I can confirm this. Long daily walks in the park around the manor house with Donna, my Irish setter friend, as my companion: what incredible natural beauty, how can one not admire this place!

Sergei Mikhailovitch Volkonski wrote in his memoirs: “Fall, wondrous Fall by the sea near Reval. My childish soul burst into bloom under the star of Fall, and for my whole life, ‘Fall’, the sound of that name, remained the symbol of everything beautiful and pure, all that is free of the burden of reality. It revives me with the refreshing caress of sea air, the resinous smell of pine woods. The sharp contours of threatening cliffs arise from my memory, the sea blazing in sunsets, soft, green moss in the moist shade of sullen spruces, and sharp, grey moss on dry sand beneath red pines; the tempestuous river in the depths of its banks, the valleys and hills that spread out far in the well-groomed park; enormous chestnut trees with cramped branches, fine feathery larches; murmuring water and mossy rock, friendly blueberry and smiling strawberry in the quiet of the woods; twisting, fleeing paths that ascend and descend as stone stairs; gazebos in the hills above the frothing river and green plains, looking far into the distance to the blue sea or to the hilly, branchy woods, beyond which a pink tower hoists its blue and yellow flag...” Every time I went for a walk in the vicinity of the manor house, I was haunted by the question of how it could be possible that a building with such a unique history in such a unique location could simply perish. Glad tidings came in 2007 when we heard that plans had been made to convert Keila-Joa into a presidential residence. Unfortunately, the government’s plans changed and the manor house was once again put up for auction.

On 27 May 2010, a contract was concluded for the sale to a private individual of approximately five hectares of the diminished central core of the estate, together with the structures on this land. Interestingly, the transaction happened to take place on the same date as in 1833 when the new mansion was completed, and Tsar Nikolai I was present with his wife at the house-warming.

In the autumn of 2010, the starting point naturally had to be the manor house’s history, and the research on existing materials in both Estonian and foreign archives. The more this history was studied, the greater the responsibility grew, and the more fascinating the anticipation of the beginning of the restoration became. The basis of the restoration concept was the wish to restore the exterior appearance of the manor house as similarly as possible to its original appearance. The re-creation of the interiors designed by Andrei Stackenschneider, St. Petersburg’s most famous architect of the first half of the 19th century, turned out to be a real challenge. We asked the Tretyakov Gallery in Moscow for help. They placed copies of A. Stackenschneider’s unique, previously unpublished paintings and prints at our disposal. This was followed by research work on the manor houses and palaces of St. Petersburg to become familiar with the oeuvre of the imperial court’s architect. Of these locations, the main ones were the Mariinsky Palace on St. Isaac’s Square, which Tsar Nikolai I commissioned as a gift for his dear daughter, the Grand Duchess Maria Nikolayevna, Beloselsky-Belozersky Palace, Novo-Mikhailovsky Palace and, naturally, the Cottage Palace in Peterhof. Upon realising how complicated the interior work was, we decided at some point to involve in the process architects and restorers who worked at the St. Petersburg Academy of Arts.

RULES THAT GUARANTEE SUCCESS

1. Don’t listen to whoever says that something is impossible. How many times have you heard that it isn’t possible to do something, and that nobody has ever done this before? I like it when somebody says that this has never been done before. That means that if I do it I’ll be the first one who has done it. Don’t pay attention to people who say that it isn’t possible to do something. I always listen only to myself and I say to myself, Yes, you can do this!

2. Give something in return. No matter how busy you are, you always have to find the time to give something back to your nation and people. Helping other people brings you more satisfaction than anything else that you can ever do.
The Gothic Revival style arcade in the hall. Photos by Ardo Kaljuvee.

The central hall in its former glory. Photos by Ardo Kaljuvee.
Monuments are not museum exhibits: it is not only allowed, but in fact recommended to use them and, if need be, even bring them up to date to some extent, as usage guarantees constant maintenance. However, the line where moderate, function-based updating ends and ruining the monument begins is vague and changes over time. It is also largely subjective, depending on who draws the line and on what basis it is drawn. At the 2015 National Heritage Board award ceremony, it was decided to specially recognise people and institutions who have successfully adapted an architectural monument to a new function. Such adaptations need not be examples of classic restoration in authentic form, which usually get the awards. Rather, they can be partly works of restoration and partly the art of compromise, where in order to reuse the building, a balance has been found between preserving the old and adding the new. Emphasising such activities, we wish to stress that, besides the fine restoration of churches and manor houses, it is equally laudable to sort out and give a new lease on life to less ambitious buildings, even if this occasionally means adding new glass walls and concrete floors. Seeing hundreds of similar empty manorial outbuildings quietly collapsing, it seems highly justified to relax a few heritage conservation rules so that these buildings can be used again. Trying to find a new function for the huge outbuildings of manors constitutes one of the most complicated parts of architectural heritage. They are usually in rural areas where the population is decreasing and the potential for property development is non-existent. Such buildings have often been abandoned for a long time ago, and they are huge. A new roof would cost the same as building a new residence from scratch. Tackling such buildings requires big ideas and big money, and occasionally flexibility from heritage conservators.

THE VANA-VÕIDU MANOR COURTYARD-TYPE LIVESTOCK STABLE
The Vana-Võidu livestock stable had been quietly crumbling for decades and was partly in ruins before the Viljandi vocational training centre decided to use it. One wing was in such a dismal state that it had to be demolished. The attic rooms were properly rebuilt, adding roof windows and reconstructing Soviet-era dormers. As a roof covering, modern long-pane sheet metal was used. To improve the logistics of the building, a glass gallery was added to the inner courtyard side. According to the initially agreed upon project, the glass section was supposed to have two floors, but the size of the planned extension was reduced by budget cuts, which was actually quite welcome from the point of view of heritage conservation. It is certainly worth stressing the “one per cent for art” law here, i.e. an artwork has to be commissioned when a new public building is built or an old one reconstructed. In this case, the tsarist-period wind-operated pump was restored and artworks formerly in the Soviet-era extension of the main building were relocated to the livestock stable.

THE VÄIMELA MANOR CATTLE SHED
The Väimela manor cattle shed has also been given a new life thanks to the development of vocational education: Võru County established a Vocational Training Centre of timber processing and furniture production there. Outside, the building stayed much as it was, but the interior changes were considerable. In some modern classrooms, the history of the building is visible only in wooden supporting pillars; elsewhere, historical wall space is displayed in old doors and other details. On the whole, the building seems most imposing and hopefully enhances the development of the entire manorial complex.

THE PAJUSI MANOR BARN-GRAIN DRYER
The Pajusi manor’s barn-grain dryer was revived by the private limited company Paalakalda, with a great sense of mission. The Soviet-era extensions were demolished, crumbling walls and openings were restored, and the roof was replaced. Today, concerts are organised here and mill equipment is displayed. As there is no heating, the old dryer can be used in warm weather only. Because of its modest function, it was possible to retain the historical appearance of the barn-grain dryer both outside and inside. The same company has bought three other outbuildings in the Pajusi manorial complex and is planning to restore them as well.

THE MOOSTE MANOR DAIRY
The former dairy at the Mooste manor was turned into a health centre. This involved the highly active heart of the manor, where artists, musicians, restorers, a theatre, a shop, a guest-house etc. now operate. The ramp in front of the old dairy was replaced by a modern concrete sloping surface, together with steps, which constitute the biggest changes to the exterior of the monument. In order to use the attic floor, small dormers were added at the back of the...
(1) Vana-Võdu livestock stable before and after restoration. Photos by Jaan Välõ.

(2) Exterior view of the Väimela manor stable after restoration. Photo by Martin Siplane.

(3) Interior view of the Väimela stable before and after restoration. Photo by Kersti Siim.

(4) BUILT HERITAGE
building, and roof windows at the front. The interior has everything that a modern health centre needs, including saunas, a salt chamber and Jacuzzis.

OLUSTVERE MANOR DAIRY
At the Olustvere manorial complex, the Olustvere Service and Rural Economy School has already achieved so much that turning the old dairy into a honey house seems like just another drop of honey in the honey pot. People can learn various things about honey there: partly in ordinary classrooms, and partly in labs and production rooms. Restoration work has been carried out at a professional level. A great deal of the original building has been retained and through the glass floor in the kitchen the visitor can have a peep at the equipment of the former dairy.

HERITAGE CONSERVATION RESTRICTIONS AND LIBERTIES
Heritage conservationists are used to contradictory criticism: sometimes they are blamed for allowing too extensive alterations, sometimes for not allowing anything and thus letting monuments crumble away. This proves that for the National Heritage Board the range of solutions in restoring a building is quite wide. Solutions of course largely depend on the value of each monument, its condition and how it is viewed: not all solutions acceptable for a 19th century outbuilding can be transferred to the heart of an Old Town or a medieval castle. At the same time I am beginning to feel that the reason why in many cases people think that heritage conservation “does not allow anything” is that during the compilation of special conditions for conservation nobody can actually foresee their needs or explain them to the involved specialists. It is possible while compiling special conditions to carefully consider whether and how to make extensions and structural changes to a monument, while maintaining its historical substance and appearance. If the client fails to clearly explain what he needs, the specialist will probably map out only the valuable details-structures and decide that everything must be maintained and restored in the existing volume: this is the simplest and obviously most easily accepted version. When such highly conservative special conditions are presented to the National Heritage Board, they have no reason to say “maybe you would like a roof window or two, or you might consider a cheaper material for the roof”. This is why special conditions are often stricter than they need be, and this creates an image of heritage conservation as being extremely rigid.

Practical advice to the owners of architectural monuments: special conditions mean an official agreement before any work is done about what has to be preserved and where the monument can be changed; it is sensible to invest a lot of thought and to be ready to argue because special conditions establish the framework for all subsequent activities. A thorough compiler of special conditions who is able to argue and to whom all needs have been clearly explained can guarantee much more freedom for action than someone who claims with copy-paste methods that everything must be maintained in its existing bulk.

It is actually a bit strange that the official restrictions for restoring a monument are still set by private enterprises and not by a state office (this might change in the foreseeable future). From the owner’s point of view, however, this is not totally negative: since he must finance the compilation of the conditions himself, he also calls the tune. When the tune in the client’s document gets too loud, heritage conservation can turn it down a bit and seek a compromise. However, if the client’s tune is not heard at all, all he can do later is complain that nothing is allowed and wonder why heritage conservation is not as strict with some other monuments.
WHAT ARE URBALTISCH HOUSES?
Estonia’s oldest, quite extensively preserved type of house is a single-storey building with a tall, half-hipped roof, a rectangular ground plan and a mantle chimney, which was referred to using the expression *urbaltisches Haus* in German-language academic literature of the past century.

The word has apparently been known in German-speaking circles for quite some time. In academic literature, it originates from the Baltic German researcher of manors Heinrich Pirang and has made its way into the writing of Estonian researchers by way of the works of the ethnologist Gustav Ränk, and the architecture historians Helmi Üprus, Juhan Maiste, Epi Tohvri and others. In addition to describing a particular type of building, the term *urbaltisch* has also been used to more broadly characterise Estonian rural and small town Baroque techniques of architecture and construction with peasant elements.

The *urbaltisch* house type that is associated with the local rustic and ponderous Baroque style of construction represents the characteristically German school of construction in Estonia, and its model was apparently the Prussian peasant dwelling. At the same time, the influence of Swedish vernacular architecture and of simpler town dwellings is clear. The genesis of this type of building requires further elaboration.

The most ancient manor mansions, residences of estate managers, and houses of manorial estate farm hands, rectories and parish clerk’s houses, later also parish schools, older township halls and in exceptional cases even farm mansions were all built in a similar general form in Estonia in the 17th–19th centuries. This article focuses on houses in towns.

DISTRIBUTION, TIME OF CONSTRUCTION AND CONSERVATION

*Urbaltisch* houses can be found in all Estonian towns where urban fabric had started developing prior to the mid-19th century. The durability of these houses differs; it can be said that the larger the town, the fewer of the oldest types of wooden buildings have survived. Such houses can still be encountered in Tallinn only in old photographs: only the buildings on the lot at 19 J. Poska Street remain.

A few such houses survive here and there in Tartu (in the city centre around the Church of St. John, on Kalevi Street in the Karlova district, and elsewhere), but considerably more can be found in Pärnu, Valga, Viljandi, Haapsalu and other county centres. There were probably many houses of this type in Võru in the early days of the town, but only a few of them remain. Perhaps the most beautiful selection awaits the curious architecture enthusiast in Rakvere. Besides towns, the *urbaltisch* house type spread in hamlets as well. Thus such houses can be found in Otepää, Törva, Rõngu and elsewhere.

The *urbaltisch* house took shape by the 17th century. Most of the examples that have survived to the present are from the 18th–19th centuries. Nevertheless, houses that may be presumed to originate from before the Great Northern War (i.e. before 1700) are encountered in many places. Writings concerning that period claim that all wooden buildings were destroyed in that war, but sources indicate that immediately after the war a few houses still remained and it appears that some of them remain standing to this day (in a couple of cases, dendrochronological dating also verifies this).

The *urbaltisch* mode of construction did not disappear with the fading away of the Baroque. A few houses of this kind were still being built in small towns in the first half of the 19th century, and even in the middle of the century, ignoring the requirement to use Neo-classical model façades that was in effect back then throughout the Russian Empire, and referring to these requirements only in the details of the houses. *Urbaltisch* houses (unlike the buildings of the subsequent era of model façades) were still commonly being built under the direction of local master builders without officially approved construction plans.

Most of these buildings are situated in conservation areas, and a few are listed as separate cultural monuments (many of those since the Soviet era), but there are also examples of such houses that have escaped the attention of cultural heritage preservation agents. *Urbaltisch* houses definitely merit preservation as witnesses of local settlement and construction traditions, and they require professional treatment from the standpoint of the conservation of their architecture, which is difficult to assure without governmental protection.

Restoration has not always proceeded without setbacks, even in the case of houses that are listed. These buildings are mostly not in danger of being demolished (though quite a few of them have burned down after being left vacant), but the dubious quality of some of the resto-
ration work that has been done endangers their preservation. This is true especially in cases where the building is in a conservation area but it is not a listed monument of its own, or when sufficient examinations have not been conducted. There are difficulties in appreciating historical substance: random solutions are to be found in the selection of paints and colours, building additions and reconstructions, windows and doors, as well as in interiors. Since these buildings are not very attractive to the ordinary observer and are often in poor condition, they require increased awareness, and the attention and support of professionals. There are more houses that gradually perish, dying the slow death of negligence and neglect, than houses that have been “restored to death”. This situation is characteristic of other types of historical buildings as well in small towns. This is more a problem of regional policy than of cultural heritage preservation, but this kind of forgetfulness is particularly painfully conspicuous in the case of the oldest and most valuable structures.

VOLUMES AND TYPES

Urbaltisch houses can be divided into several subtypes. Epi Tohvri considers elongated, ponderous varieties (“long Baltic houses”) to be the oldest type, and more compact buildings with an approximately square ground plan and more attributes of architectural styles to be somewhat more recent varieties.8

It seems to me that urbaltisch houses with very different volumes and proportions were built in Estonia during the same time period. This is only a hypothesis for which there is no proof because the time of construction of most of these buildings is only approximately known, and their overall shape also changed over time.

Distinctions between different towns, however, can admittedly be seen in the treatment of details, as well as in building volumes. In Valga, for instance, quite a few truly tiny houses, “mini-specimens”, were built alongside more typical urbaltisch houses, and a few such houses survive. Extended roofs resembling shelters on the sides of buildings facing the gardens, etc. were widespread in Võru.

There are buildings in Kuressaare and Haapsalu with ordinary gabled roofs instead of the ponderous half-hipped roofs characteristic of urbaltisch houses, and this appears to be the original roof design, but these houses would in every other respect be categorised in the urbaltisch group in terms of their treatments of details, their mantle chimneys, ground plans, and time of construction.9

The curved roof or mansard roof that had previously been rather common is practically not encountered at all any longer in urbaltisch houses in Estonian towns. It can currently be seen only in the case of some manorial mansions and in small Latvian towns, where more small, older dwellings have survived. Other relatively modest types of urban houses are found in Pärnu, alongside typical urbaltisch dwellings. They form a particular kind of transition from the more vernacular urbaltisch buildings to more lofty Baroque town dwellings, i.e. between local building customs and “real style” architecture.10

The buildings of the current Tartu Toy Museum represent also special varieties that cannot be reduced to actual chrestomathic cases of the urbaltisch building type, but they still belong to the same general category in terms of age and certain architectural and construction technological traits.11

The volume of these buildings was initially rather compact but quite soon additional wings and vestibules, stairwells, cellar entrances and other additional volumes were built on the sides facing the gardens, making the garden landscapes very dynamic. In the era of Neo-classicism, vestibules and porches designed as miniature porticos were built in front of the entrances on the sides facing the street (examples of this survive in Viljandi and Paide; elsewhere they have mostly been demolished). Thus the original characteristic volume is not even readily visible behind all manner of “kiosks”.

Needless to say, current architects are tempted to liberate buildings from secondary strata, but this involves certain dangers. It might mean the need to reconstruct long stretches of façade based on assumptions. Secondly, it is the sides facing the gardens in particular that sometimes become incredibly bare in this process and lose a great deal of their genuine vernacular wooden housing district charm.

MAIN CONSTRUCTIONS AND ROOF COVERINGS

Wooden houses were built as horizontal log buildings. Stone structures, which are also found as components of this type of building, can be in the form of either brick or limestone walls, depending on the region where they are located, and they are in most cases plastered. In some houses, some part of the building, for instance one end wall, was built using half-timber frame construction. Relatively archaic corner bonds were used here and there in log buildings, forming overlapping corner joints. These were covered by vertical boards for protection and to achieve a more urban appearance. More modern construction methods later drove these overlapping corner joints out of the towns, but such houses were still being built in the countryside even in the mid-19th century. The condition of the wooden constructions varies, although in many cases it is surprisingly good, even in houses that look very run-down from the outside.

Roof constructions merit separate attention. Even though many of them are from a later period, there are also very old and fascinating constructions, where rare mortise and tenon joints can be seen along with traces of old techniques for finishing and protecting wood. Eighteenth-century constructions that required a more sensitive approach have here and there been demolished or completely reconstructed without any closer examination. Tile roofs were the primary roofing materials in use. Sheet metal is a material from later periods and is associated
The previously rather common curved roof is disappearing from our towns, but it can still be found in Latvia. A restored house in Ventspils. Photos by Oliver Orro.

This dwelling built around 1770 in Viljandi at 19 Tartu Street was one of the first burgher’s houses to spring up outside of the former Old Town. A tiny portico was added to the building in front of the entrance in the Neo-classical era.

The overlaid vertical boarding, typical of the era when this house in Kuressaare was built, has been restored. The dark red colour is quite plausible in the vernacular Baroque tradition.

The building at 16 Kohtu Street in Kuressaare, where there generally are more urbaltisch type stone houses compared to other Estonian towns.

There are also houses with half-hipped roofs with their ends facing the street (in the foreground), which by joining into their “sloboda-type” walls facing the street functioned as a kind of transitional version between older local building traditions and buildings in wooden housing districts influenced by Russian model façades. Jõe Street in Tallinn, photograph from the 1920s. The buildings have perished. Photograph from Tallinn’s Culture Department Archives.
with reconstructions from the beginning of the 20th century. In old photographs, even tar-paper roofs can be seen on many houses, some of which have been preserved to this day under Eternit. Wooden roofs are found in the form of shingle roofs and board roofs. Even though fire safety regulations were issued to prohibit wooden roofs in densely populated areas, they persisted in small towns. Most of the board roofs that are currently being found under later strata were originally meant as sheathing.

When the decision is made to remove the sand filler from on top of the mighty and, according to present-day attitudes, needlessly overly large inserted ceiling beams (it must always be considered if this removal really is necessary!), it is necessary to keep an eye on what emerges in the case of such old buildings. Something unexpected and valuable could emerge, both random finds and objects that have intentionally been hidden. “Attic archaeology” is becoming almost a habit in the case of manor houses and churches, and it is important to emphasise the need for this in the case of town dwellings with long histories.

LOCATION IN URBAN SPACE
Urbaltisch houses are ordinarily situated along the street line. In some places, a ditch might have run between the street and the house and, for this reason, there are also a few buildings that are set back from the street line, or are even situated further back on the lot.

The prevailing tradition was to situate the building with its lengthwise side facing the street, but houses with their ends facing the street are also found. The opinion that such houses are from a later period and are connected to the influence of Russian Neo-classical model façades is not entirely justified, although there was a certain transitional type of house. This kind of positioning was mostly conditioned by the shape of the lot, and it may also have come about in cases where several houses had to be situated on a single lot.12

It must be taken into account that the visual effect of urbaltisch houses was altogether different in urban space when houses were not as densely situated as they are today. Generally speaking, the aspiration for a more orderly and regulated urban space became important in the 18th century, and this includes wooden buildings in small towns.

FOUNDATION AND CELLAR
“Drowning in the ground” is a frequent problem because most urbaltisch houses in towns were built on very low socles, in some cases almost without foundations. For this reason, these buildings are especially sensitive to the raising of the ground level in the course of street repairs.13 Thus, some houses built on slopes have ended up in worse situations, as can be seen in a particularly grotesque form in Valga. On the other hand, there are also some houses with complete cellars (sometimes vaulted; some houses have wells in the cellars) and very well-built foundations.

In quite a few cases, it can be assumed that the body of the building that is currently visible was erected on the foundation of an even older structure. For this reason, it is always necessary to weigh the need for archaeological supervision prior to more extensive reconstruction work on buildings with cellars.

EXTERIOR FINISHING
Externally, these houses are typically covered with broad siding boards. The width and thickness of the boards, the quality of the wood and the mighty nails made by smiths that were used to nail the boards to the walls are all very impressive. The boarding can be horizontal or vertical, the latter being found more on the ends of the buildings and on the sides facing the gardens.

There are some very exceptional and archaic ways of cladding, for instance “edge joint boarding”: there are instances where non-profiled boards were simply placed tightly side by side and nailed to the wall. Sometimes tongue and groove boards were used (as if floorboards were nailed to the wall). This method is still found here and there in wooden houses even from the era of Neo-classicism. In exceptional cases, boards were used that had been split off from logs by means of wedges and were planed until smooth only on the exterior side. The edges of these boards were grooved by hand using a grooving plane. The siding of many houses was replaced later during the era of historicism or in the Soviet era.

It is not known exactly when buildings in towns first started being covered with board siding. It evidently became prevalent in the 19th century. Dwellings have been discovered in Pärnu with the number of the lot written directly on the log wall. Thus the building had to have been without siding for at least some period of time. Elsewhere, paint was applied to the logs, mostly ochre yellow or Falun red (in Lihula, for instance).

There are also plastered log buildings. Plastering is usually from a later period (there is boarding under the plaster with several coats of paint), but in some cases the plastering is very old, perhaps even the original finishing method.

Stone houses were mostly plastered and had scant décor. Too few of them survive in unreconstructed form to make any broader generalisations. Generally speaking, colour schemes have scarcely been studied. The repeated appearance of deep green hues in the bottom layers of finishing on wooden houses has been noted in one observation, but this became considerably less common in houses from the latter half of the 19th century.

WINDOWS AND DOORS
The diversity of windows and doors is rather problematic in restoration. Previously, most houses of this type were quite self-evidently “Baroqueised” in the course of restoration, sometimes revealing bold fantasy. Nowadays it is much more complicated to find solutions.

FOOTNOTES:
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13
Very interesting houses of Baroque form are found in Pärnu, but many of them were rebuilt in the 1970s and 1980s using mostly new materials. The work was nevertheless based on thorough and comprehensive examinations. Photos by Oliver Orro

The dwelling in relatively good condition and with great restoration potential at 4 Põllu Street in Valga should be listed as a cultural monument.

The dwelling at 6 Õllepruuli Street in Rakvere, probably built in the 18th century, has retained its archaic appearance despite extensive restorations. Its shingle roof is rare in an urban context and adds to its archaic appearance.

The Town Citizens’ Museum at 50 Pikk Street in Rakvere is one of the most perfect examples of the urbaltisch house type according to its exterior attributes, even though the building was restored as a copy at the end of the Soviet era. The only part of the original building that has been preserved is the mantle chimney.

The dwelling with a massive mantle chimney at 4 Rüütli Street in Haapsalu, where Tsar Peter I is said to have stayed. The building suffered due to the Soviet era “housing authority renovation” that it was subjected to, yet the stocky historical body can be discerned very well.
The house at 24 Lai Street in Tartu that formerly belonged to the Arens family was built shortly after the Great Northern War. This plastered wooden building was restored in the 1980s. Photos by Oliver Orro. An *urbaltisch* house in Otepää. Such houses were still being built in hamlets in the mid-19th century and even in the latter half of the same century. J. Kunderi Street in Rakvere. Both the raising of the ground level and the number of different kinds of windows and doors make the building tough to deal with from the standpoint of conservation. A taller central portion with a triangular pediment was later added to quite a few *urbaltisch* houses, including this building in Võru, giving the structure a Neo-classical appearance. A fisherman’s dwelling with a fireproof “black” kitchen with stone walls and a clay-daubed bleached wicker ceiling at 14 Lootsi Street in Kuressaare. This house, which originally had a thatched reed roof, later a roof made of thicker shingles with rounded ends, and currently a tar-paper roof, was built in the 1820s according to newer dendrochronological dating.
BUILT HERITAGE

Urbaltisch houses are now a rarity in Tallinn: one of the few that remain is at 19 Poska Street, which was restored a few years ago. Photograph by Martin Siiplane

The Baroque windows with small windowpanes characteristic of urbaltisch buildings are usually preserved only in end gables as attic windows, sometimes including cases where the attic has been partially finished as living space (in houses with “loft rooms”). They are more of an exception in their original form as main storey windows.

The first storey, as the main floor where most living took place, was rebuilt most often, and in the course of rebuilding the windows were also altered. At the same time, some houses could have had more modern Neoclassical windows divided into six windowpanes from the very beginning. Nevertheless, window openings here and there have retained their old, approximately square overall shape. In some places, even extremely old window frames have survived (Baroque or early Neo-classical angle braces of finely crafted form hint at this). The window openings of many houses were enlarged at the beginning of the 20th century in the course of their conversion to commercial space, and also during the Soviet era.

A few original front doors can be seen that can be associated with Baroque or early Neo-classicism. Some doors are perceptibly archaic but in their rustic quality are difficult to connect with the canons of the history of grand styles. Very simple doors made of vertical planks are encountered in interiors and on the sides of buildings facing the gardens. People sometimes do not appreciate these doors and replace them in the course of restoration work. Sometimes a historical door, one that may even appear to be original, may be in secondary use. Many doors (including very decorative ones) were replaced during the Soviet era with characterless “housing authority” doors.

Original windows and doors sometimes emerge from within walls in the course of renovation work: openings have been closed off in the course of rebuilding and windows-doors have been left inside the new constructions. Sometimes the architect can for this reason find himself in a peculiar situation: new window frames designed according to an analogous house or some window from a later period have already been ordered for the entire house, but now it turns out that the original windows were completely different.

MANTLE CHIMNEY

A central mantle chimney was characteristic of urbaltisch houses. This could account for almost two-thirds of the building in some smaller houses. Later houses were also built without mantle chimneys, even though the mantle chimney tradition endured for an astonishingly long time: even in the mid-19th century in small towns. Some houses had two mantle chimneys, and there were also some where the chimney was situated at one end of the house.

Many mantle chimneys were demolished and removed over time because they lost their function due to changes in heating systems, and they occupied too much space. Sometimes only a part of the body of the chimney has been preserved, and a large, dark room in the middle of the building, or stone walls in the middle of a wooden house that are only identifiable from measured drawings indicate the former presence of a mantle chimney.

The original role of the chimneys disappeared in the latter half of the 19th century with the modernisation of the kitchen. Flues were usually built into the chimney at that time (sometimes with the demolition of the upper part of the chimney), so that the chimney remained a chimney, but a bathroom was often situated there. Many rooms below these chimneys are enchantingly sooty to this day. In some houses, the chimney had been so powerfully dominant that the people in the surrounding area called it a korstnamaja (chimney house), referring to an urbaltisch dwelling preserved amongst buildings from later periods.

Chimneys (including later ones) form an important element dividing up the roof surface. In the case of buildings that have been converted to central heating and where chimneys have been done away with altogether in the course of restoration, their tall roofs without the lattice of a single chimney come across as being startlingly empty.

GROUND PLANS AND ENTRANCES

Ground plans could be quite varied, depending on the location and size of the building, and on who commissioned it.

The houses were originally prevalently single family dwellings, sometimes including a workroom or a room for commercial activity. Most buildings had simple ground plans with four rooms arranged symmetrically around the mantle chimney. Sometimes there was a larger living room the size of a hall on the street side. As in the countryside, town dwellings sometimes also had additional unheated chambers at their ends that were used only in the summer. Entrances could be situated on the sides facing the streets, at the ends of the buildings, or only on the
side facing the gardens, located at the centre of the façade or at its edges. In many cases, the location of the entrance was changed repeatedly. It should by no means be assumed that the front door of every house was originally on the central axis of the street façade. Buildings started being converted to blocks of flats in the 19th century and the general aim was to provide almost every flat with a separate outside entrance.

**BRIEFLY ABOUT INTERIORS**

Needless to say, it is not only the original interiors that have been preserved. Different strata of finishing can be found in particular abundance in some houses. Changes from the era of historicism, the 1920s and 1930s, and the Soviet era can be clearly differentiated. Often each era provided something valuable and this presents the conservator with difficult choices concerning which strata to exhibit. Joisted ceilings, Polish siding, broad floorboards, doors with odd proportions and hinges resembling ram’s horns etc. can commonly be seen. Only a few isolated houses contain rather impressive Baroque details (doors and stoves). On the other hand, interiors can also disappoint: boring Soviet-era renovation may dominate, or the house has been altogether “Europeanised” inside.

The need for close examinations must be emphasised because, in many cases, earlier strata are hidden under later ones. This possibility tends to be forgotten in the case of simple houses. Wallpaper examinations are also important since it is probable that priceless knowledge concerning our early history of wallpaper has been lost in the renovation work carried out in houses of this type. The existence of wall paintings is also likely in quite a few of these houses: more such paintings have admitted to be discovered in *urbaltisch* type manor houses (at Pidula in Saaremaa, at Loodi in Viljandi County, at Albu in Järva County and elsewhere), yet fragments have also been found in such houses in towns. Unfortunately, interior renovations of buildings situated in conservation areas have often been carried out without supervision, or the reports written up about them are extremely brief, so that information concerning interior details has been lost.

We must also come to terms with the possibility that, regardless of careful examinations, nothing interesting is found in the house, or that many original details and surfaces cannot be restored or exhibited, due to the owner’s limited financial resources or the functions of the rooms. This, however, should only mean the covering up of the original, not its destruction.

**IN SUMMARY**

*Urbaltisch* houses are among the oldest dwellings that are most abundant in stratification in Estonian towns, thus meriting particular attention and preservation. Needless to say, cultural heritage protection has to compromise in certain cases. Especially in the case of small towns, we must be thankful if anyone at all is capable of and wishes to fix up these very old houses. We should not go to extremes with our requirements. Wherever possible, more attention should be paid to examinations, the quality of documentation, good conservation practices, and the documentation of works, and also to educating careless owners. It is a pity if such dignified buildings lose their distinctive appearance due to ignorance and a lack of comprehension, or if they are simply allowed to collapse before our very eyes. For this reason, it is important to recall a few fundamental truths that seem to be self-evident when dealing with churches and manors but are sometimes forgotten in the case of everyday architecture.

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4 Tohvri, Epi. *Eesti puitaamistest ja elamulõpudistest*. Tallinn, 1999, pp. 87—89. Alongside the influence of Prussia, Tohvri stresses that there are similar peasant and hamlet dwellings in Holland, England and elsewhere.
6 Admittedly, these datings carried out at one time by Kalvi Aluve should be checked using modern methods.
7 Some form of construction drawings nevertheless evidently existed in many cases, yet often they have not survived. The construction archives of the provincial government and the municipal authorities are very sketchy for the end of the 18th century and the first half of the 19th century.
10 Parek, Elsbet. *Pärnu barok*. – *Ehitus ja Arhitektuur*, 1975, nr 2, pp. 48—50. The architect Rein Raie has also compiled comprehensive works on Pärnu’s older wooden and stone dwellings. The manuscripts are deposited at the National Heritage Board Archives.
12 Especially in cases where there already was one house on the lot and another was built later. There the older house could have been demolished or rebuilt later, for which reason the genesis of the building cover cannot be visually determined. Houses with their ends facing the street were often changed into outbuildings located under the same roof further back on the lot. A shop or a workshop could have been located at the street end, several examples of which are in Paide.
14 Part of the glazing bar was often sawn out of old frames later on, for which reason it may be difficult to recognise it at first glance.
15 This is usually a room with a vaulted ceiling or a fireproof “black” kitchen with stone walls and a clay-daubed bleached wicker ceiling. The typology of mantle chimneys has been studied in rural architecture (see Aluve, Kalvi. *Mantelkorstnad Saare maakonnas*. Bachelor’s thesis. Tallinn, 2007. Manuscript deposited at the Estonian Academy of Arts Department of Cultural Heritage Protection and Conservation.

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As the main focus of architectural paint research in Estonia has primarily been on listed houses, we know rather little of cities’ general historical colour schemes. Due to the continuous development of paints and materials, wooden buildings have often been repainted multiple times with non-breathing paints or even neon colours, which leads to the degradation of the buildings and overall a non-sustainable historical environment. Also, there is a risk of losing a large amount of data, as during refurbishment old siding may have just been replaced instead of repainting it.

In recent years the integrated study of colour schemes in Estonia has become more common after pilot research on historical wooden buildings was carried out in 2014 in the Kassisaba district of Tallinn. In the contribution of the Estonian Academy of Arts, as well as the National Heritage Board and City Councils, an analogous project proceeded with research on historical city centres, such as Valga the following year (supervised by Pille Vilgota and Kätlin Kaganovitš), and Paide, Rakvere and Kuressaare in 2016. In total, over one hundred and ten houses were studied and a database for Estonian historical wooden townscapes was created.

**RESEARCH**

In July 2016 colour research on wooden dwellings of cultural heritage interest in three small towns was conducted by the Estonian Academy of Arts and was compiled-supervised by Diana Haapsal and Claudia Valge. Fourteen bachelor’s and master’s level students collaborated in a three-week-long in situ research. At first, the aim was to study ten dwellings per city during a five-day-long period but, as research proceeded, 42 houses in total were analysed. The selection of the buildings was made in consultation with county cultural heritage officials. The researched buildings were mainly of the older type: from the 19th century or the very beginning of the 20th century, one- or two-storey dwellings which were common at that time in the Estonian and Tsarist Russian cityscape. Some buildings that had been standing for a long time and a few notable buildings from the Estonian independence period of 1918–1941 were included as exceptions.

**INTEGRATED STUDY**

A variety of methods were used, such as archival and literature studies, as well as interviews with local museum workers and historians in order to determine the construction dates, and previous reconstructions and extensions. The historical information was often inconclusive or even missing entirely, as only a few of the original façade elevations were found, and even a smaller number of them were water-coloured original projects.

Among other issues requiring research were finding out the dwellings’ colour schemes, layer stratigraphies and chronological sequences, and the occurrence of multi-toned colour schemes, their scope and dating.

Historical black and white photographs provided an opportunity to learn and focus on a single dwelling colour scheme and examine the contrast of the façade in comparison to the tone of the details. Coloured postcards played a considerable role in the background research, including hints about which colour schemes were used in the cityscape.

The focus of the study was outdoor research. The main emphasis was on colour scheme studies made mechanically with a scalpel on various surfaces of dwellings. Later the visible layers were numbered, documented, photographed and analysed. Paint layer colours were determined with the Tikkurila Symphony colour chart. However, wooden houses in Estonia were, and usually still are, painted with linseed oil paint and the most common damage, in addition to colour degradation and the layers blending together, is the cracking of the paint, which makes adequate paint exposures difficult. During the Soviet era (1940–1991) houses were often painted with inappropriate but obtainable paints which were meant for metal or other surfaces, or were often not painted at all, which did not contribute to the preservation of colour layers. Often the paint was partially preserved only in a few places on the façade hidden from direct weathering. In both such cases, paint cross-section samples were taken and further analysed using electron microscopy, so as to specify the order of paint and primer layers. More than fifty colour samples were taken, collated and studied. Electron microscope study added remarkable specification to the previous mechanical study, as often quite a few additional paint layers were detected.

A multidisciplinary approach was used: the buildings of a single city were compared with each other as well with those of the other two cities in order to identify historically widespread paint tones and pigments in the researched cities, making it possible to draw the first conclusions.
BUILT HERITAGE

RESULTS

As was previously mentioned, the results are inconclusive due to a lack of complex research in different Estonian towns, although preliminary conclusions have been drawn using the data from the five researched cities. There were city-characteristic colours: in Rakvere brown was the most used pigment, followed by ochre, green and grey tones; in Paide light ochre and grey tones were widespread; and in Kuressaare ochre, beige and brownish tones were dominant.

The earlier paint research showed that warm brownish hues were the most popular ones in Valga but, notably, early green tones were more present than elsewhere. This could have been due to the railway: green was considered the unofficial colour of railway buildings and Valga was connected to the rail network in 1899.

Compared with Tallinn’s Kassisaba district, the number of paint layers was lower in the small towns. In Tallinn, houses were usually painted six times, whereas in the small towns the average was three and a half.

In conclusion, the most common colour pigments used in the 19th-century Estonian cityscape were ochre yellow and red pigments, as well as earth brown and green colours. The colours were usually broken half-tones, and sometimes coal was added to darken or used to make grey paint by mixing it with lime. Historical colours rarely included blue or violet hues; they became more accessible and thus popular at the beginning of the 20th century. Paint primer was usually linseed oil-, lime- or chalk-based. Polychrome colour schemes (façade colours different from details) were common in the 1920s and 1930s, but they were not as widespread as monochrome colour schemes.

These conclusions can be drawn due to the possibility of differentiating and dating colours that were used during the Soviet era (brick red, brown or green colours). Regular patterns connected with the size of a town and the number of layers were discovered.

DISCUSSION

The need to create a digital database has gained prominence because the volume of collected data is very high, which is why it is also hard to administrate the data. This is due to the diversity and multi-levelness of the collected information of a single dwelling agglomerating its historical data, paint exposure charts, photos and descriptions. Worth considering is a public database on the Internet, which would make accessing the results for those interested easier, hence improving their usability.

Adding towns or districts to a research platform would increase the relevance and significance of results and the accuracy of their generalisation. If collecting such data continues, it would be possible to reach broad, general conclusions to complement the current, fairly general knowledge of different colours used in certain eras. The regional peculiarities of the colour schemes and the detection of city-specific colours are fascinating. The aforementioned question, as well as the identification of era-specific colours, could be the main targets of future research.

CONCLUSIONS

It is essential to continue paint research studies to study and document the colours of the past. Research on architectural colours is a great asset to building restoration. This applies not only to monuments and listed buildings located in residential areas of cultural and historical value, but also to all surrounding built environment and architectural identity in general.

Sample documentation of paint layers. On average, four such forms were filled in per house. Documentation and photos by Diana Haapsal

Typical urbaltisch house in Valga. The documentation above records the paint layers on its door frame. Photo by Diana Haapsal

regarding the exterior colour schemes of historical wooden dwellings, as well as the townscapes of Estonian cities.
The villa of the director of the Luther factory in Tallinn, built in 1910, is a part of the building complex of the plywood and furniture factory founded by Alexander Martin Luther in the 1870s. Characteristic of the time, the factory created a typical industrial neighbourhood, comprised of — in addition to the director’s villa — a cultural centre, fire station, water tower, workers’ housing and obviously the factory itself.

The architects Nikolai Vasilyev and Aleksey Bubyr from St. Petersburg began to plan the villa in 1909 after the completion of the German theatre in Tallinn (the current Estonian Drama Theatre). The first design sketches resembled the rustic American villa style, but the final design was closer to the German theatre in style, representing the Nordic art nouveau architecture currently popular in St. Petersburg.

The villa was used by the Luther family for only two decades, and in the 1930s they rented it out to the Italian embassy. In 1940, the building was nationalised and turned into a paediatric clinic. In the bombing in March 1944, the interior of the building was nearly entirely destroyed. After the war it was rebuilt for housing, new roofs were added and all doors and windows replaced. In 1956, the former villa was converted to a paediatric clinic and first aid station once again.

Pärnu Road was widened and many new buildings were erected in the area, leaving the villa as a rare example of a pre-WW2 urban structure. In 1972, the nine-storey House for Journalism was completed, which cut off the villa from the rest of the factory’s buildings.

In 1970, a decision was made to turn the building into a registry office. In the 1971 design of the “wedding house”, the interior architects Ants Raid and Sirje Uusbek from the architectural bureau Kommunalaprojekt planned to demolish all non-bearing interior walls and replace the existing main staircase with a new one connecting all three storeys of the building. Public rooms were foreseen for the central part of the building, whereas the former servants’ quarters were to house offices. The completed design drawings had to wait for implementation because of a lack of funds for construction.

By 1977, the interior architect Sirje Uusbek was working in the architectural bureau of the Union of Theatres, which undertook the renovation of the Estonian Drama Theatre in 1978. That same year the design of the “wedding house” was taken up as well. The interior architect Leena Zaporozets from the studios of the Artists’ Union asked Sirje Uusbek to join her and most of the building was designed by Uusbek; Zaporozets designed only the third floor rooms. The general idea behind the design was to create interiors which would fit with the architecture of the building.

One had to be creative when designing and making furniture because the choice of materials and techniques was very limited. Therefore, the typical art nouveau fluidity and lightness of forms was only occasionally achieved, for example in the draught lobby’s gable design. The furniture design remained heavy-looking. The metal artist Maire Morgen-Hääl was more successful in designing metal lamps and railings because she could take advantage of employing experienced masters from the Tallinn Technical University. Other artists from the studios of the Artists’ Union joined the project: stained glass was made by Dolores Hoffmann, murals by Eeva-Aet Jänes and the glass chandelier in the cellar by Mare Soovik-Lobjakas. The work was completed in 1982.

The restored interiors of the villa were listed in 1995, two years before the building itself was listed as a monument. The reason for such an early listing was the private property reform of the 1990s, which led to fear that the building might be privatised and the interiors rebuilt.

View of the Luther villa in art nouveau style. Photos by Uku Peterson
Protection of the villa’s interiors was exceptional and caused value conflicts because at first only the relatively new, Soviet-era design was listed and not the much older building around it. Generally, the building was regarded as more valuable.

The fear of loss was not unreasonable: for example, the Sakala Centre and its remarkable interiors also dating from the late Soviet period were not listed and these were nearly entirely demolished.

Listings in the 1990s were done in haste and often only the name or address of a building was recorded without any further documentation. Many of these monuments are still waiting to be properly described and analysed. This was also the case for the Luther villa. Therefore, in 2016 the cultural heritage department of Tallinn had the villa’s interiors described and documented. Measured drawings were made of all of the original details, and interviews were conducted with the designers Sirje Uusbek and Maire Morgen-Hääl. The latter still had some of the 1970s drawings of the lighting devices and metal objects, as well as a few models. According to the designers, their post-modernist interior was inspired by the Nordic art nouveau and art deco styles in order to harmonise with the architecture of the architects Vassiljev and Bubó. When designing the new interiors, they could not turn to the original, 1910 solutions because the function of the building was very different and no historic material had survived. Thus the result is a hypothetical reconstruction. The interior of the “wedding house” is very close to that of the Estonian Drama Theatre: the same architects built it and the same designers restored the interiors at the same time.

The philosophical and methodological principles behind these interior design solutions were typical of the restoration practices in Estonia and elsewhere in Eastern Europe in the 1970s and 1980s. The provisions of the Venice Charter of 1964, in which restoration “must stop at the point where conjecture begins, and in this case moreover any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp” were not followed. Thus the interior of the Luther villa is an example of stylistic restoration (or rather reconstruction), similar to the restoration of several manor houses (e.g. Palmse and Sagadi) around the same time. The conversion of a private house for public use was also typical of the Soviet heritage policy. Today, this layer is valued both as an example of historic restoration practices and for the aesthetic quality of its post-modernist design.

There are further examples of post-modernist architecture which have recently caught the attention of the heritage authorities: in 2016 the cultural centre of Paide was listed and the National Library is to follow.
(3) Festive hall of the registry office designed by Sirje Uusbek (4) Chandelier in the festive hall by Maire Morgen-Hääl (5) Stairs with railings and lamps by Maire Morgen-Hääl (6) Mural painting in the bridal chamber by Eeva-Aet Jänes
ST PAUL'S CHURCH IN TARTU – MADE IN FINLAND: RESTORED IN A MORE EXCLUSIVE MANNER THAN ORIGINALLY BUILT

Egle Tamm

1911–2006: FROM THE IDEA OF BUILDING THE CHURCH TO THE ARCHITECTURAL RESTORATION COMPETITION

On 12 September 2015 the restored St Paul’s Church in Tartu and its new winged altar were consecrated. The church is a gem and should be visited: participate in a service or listen to a concert to get deeper insight. At a southern Estonia tourism conference, St Paul’s Church was named the best tourism object in 2015 in the area.

The first plans for the church were drawn up in 1911, when the existing houses of God were no longer able to accommodate the inhabitants of Tartu and rural people from the nearby area of the Karlova manor. The safe and usual choice would have been a church in a Revival style, but by that time historicism was already old-fashioned and, more importantly, represented German taste. Estonians had been active in various societies for several decades and were now looking for something new and more Estonian. As there were no professional architects of Estonian origin, and the Finns had the professionalism, as well as understanding nationalism in the form of national-romantic architecture, Eliel Saarinen (1873–1950) was commissioned to design the church. In Saarinen’s 1913 design, the church was innovative not just stylistically, but also functionally. For the first time in an Estonian church, the office, residential quarters for the staff, a small confirmation hall and other necessary rooms were all united under the same roof. Saarinen did not design the church as one single box, but as three parts, where the dominant part was the church hall with the tower and two anterior wings; a small urban square thus appeared in between. Architecturally, the church resembles Saarinen’s town hall in Lahti, Finland, completed in 1911. The central part, including the church hall, was completed in 1919 and the left wing in 1931. The right wing has still not been built. The church burned down during World War II and for a long time no money was found to restore it. After the congregation finally managed to start renovating in the 1960s, the Soviet state installed a sports museum in the wing and most of the church hall was filled with collections of the Estonian National Museum. The congregation was able to use only the side next to the main doors of the church hall for its intended purpose.

An architectural and interior decoration competition for the restoration of St Paul’s Church was organised in 2006; the winning entry was by the Finnish architects Merja Nieminen and Kari Järvinen.

CAPTURING ELIEL SAARINEN’S SPIRIT AND FORM LANGUAGE

In the course of designing and building, the Finnish architects changed their mind. The focus shifted to trying to capture Eliel Saarinen’s spirit and language, which meant that the church would not be restored as it had been originally built, but as similar to Saarinen’s style as possible. The church completed during the war had a wooden floor, whereas now the architects followed the example of Finnish churches of the time and produced a parquet floor of large concrete slabs (90 × 90 cm) and small slabs of natural stone (Saremaa dolomite and stone from Öland). The spire was given a greenish patina, as happens to copper in coastal areas, although inland, such as in Tartu, the initially orange-glowing copper normally turns brown when it becomes oxidised. The destroyed balconies of the church hall were restored following Saarinen’s idea of using reinforced concrete, although the Estonians had built them with wooden construction. The capitals of the pillars were designed after a sketch in Saarinen’s project, despite the fact that the originals had been floret-shaped. The new capitals were not cast of plaster, but shaped manually or, rather, they were cut out of plaster and then round forms were glued onto them. Taking a closer look at the capitals on the balcony, they seem genuine and warm. The plaster mix for the pillars, walls and ceilings of the huge church, which seats 1100, was brought from Finland and, in order to find a suitable kind, the Finnish acoustics firm Akukon OY conducted acoustic tests and calculations. The architects used known and trusted materials and technologies. Everything was carefully thought through down to the last detail; nothing was left to chance nor were cheaper alternatives employed. The restoration of St Paul’s Church thus did not so much aim to represent what had been as to create an ideal picture of the architect and his era. This viewpoint is well justified, as more exclusive solutions did not so much envision restoring or correcting the original as adding what was missing. As the
(1) Inspired by art nouveau and Finnish national romanticism, the church was the first congregation-centred church in Estonia, accommodating, besides the church hall, a number of other rooms for the everyday work of the congregation. Photos by Martin Siplane

(2) The wide hall with a transept and balconies is bright and spacious
church was constructed during World War I and the War of Independence, this probably had an impact on using what was cheaper and more primitive. However, the skills of Estonian builders at the time and the client’s insufficient knowledge were also among the reasons why cheaper and simpler materials were used. Saarinen’s idea of having an urban square in front of the church was abandoned, and instead a fence was put up along the border of the plot, on the street side of the square, because it had actually existed earlier. Before the last war, the church was indeed surrounded by wooden fence rails, which did not follow Saarinen’s big-city visions, but relied on the local habit of marking territory properly. The new fence is not a simple wooden fence, but a metal one that suits the architecture of the church.

**ALTAR AREA AND ARTWORK AS KEY ISSUES**

The main change occurred in the most significant part of the church: the altar area. The winning entry had a modern solution, without any mural decoration. However, comparing the investigation results of the original plaster on site with old photographs and Saarinen’s drawings, it became clear how precisely the old drawings had been followed, and this inspired the architects to design the area with murals, as Saarinen had planned and how it had originally been executed. In 1923 when the sculptor Amandus Adamson completed the larger than life-size altar sculpture (3.5 m) of white marble, depicting Christ, Mary Magdalene and the blind man of Jericho, the windows of the apse were walled up. The reason back then was that the light did not allow the sculpture to be viewed properly. During the restoration the windows were opened again and the old surviving frames were restored. In order to reduce the intensity of light pouring in through the windows, slightly tinted glass was used in their inner sides, where the pattern was taken from Saarinen’s work. The original apse murals were reconstructed as well. In the context of Saarinen’s project showing the design of the area with murals, as Saarinen had planned and how it had originally been executed. In 1923 when the sculptor Amandus Adamson completed the larger than life-size altar sculpture (3.5 m) of white marble, depicting Christ, Mary Magdalene and the blind man of Jericho, the windows of the apse were walled up. The reason back then was that the light did not allow the sculpture to be viewed properly. During the restoration the windows were opened again and the old surviving frames were restored. In order to reduce the intensity of light pouring in through the windows, slightly tinted glass was used in their inner sides, where the pattern was taken from Saarinen’s work. The original apse murals were reconstructed as well. In the course of their work, the architects carefully examined the section of Saarinen’s project showing the design of the apse. They concluded that Saarinen had designed the apse windows much lower than they were actually built, plus he had planned a low altar retable in front of the windows. From the sketch, it is not possible to decipher what passage in the Bible is depicted, but it seems to be a composition with several figures wearing long habits.

In the winning entry, the Finnish architects proposed to make the altar retable partially of glass. The competition work that came in second suggested restoring the massive sculpture by Amandus Adamson. Because of a post-war fire, only a big clump of marble remained of the sculpture, with two feet and some folds of the fabric surviving recognisably. The solution of the altar area was the key issue at the competition and it seemed a brilliant idea to emphasise the altar as the central element in a church service by using glass artwork. Glass as a fragile and sensitive material would have produced an abstract and imaginative altarpiece, which would have emphasised the bright and spacious interior of the church. The glass work was justified also from the historical aspect: when the church was built in the second and third decades of the 20th century, altar retables were no longer designed in churches. The pastor of St Paul’s, Arnold Habicht, mentioned this repeatedly in his newspaper articles in which he introduced the planning principles of St Paul’s: “It is no coincidence that the new churches produced in the 20th century style do not have altar paintings anywhere, almost without exception, and if they have something, it’s a sculpture.”

By early 2014 it was clear that instead of a glass artwork altar the church was going to have a winged altar with paintings by the Finnish artist Kuutti Lavonen, because there were apparently no good Christian glass artists to be found anywhere. Thus, through the brush of the virtuoso artist Kuutti Lavonen, the church acquired a winged altar depicting single figures of St John the Baptist, St Peter, the Virgin Mary and St Paul, plus the Annunciation and the Crucifixion. The retable is professionally executed. Whether visitors like it is another matter. In the context of Estonian churches, where altar paintings mainly originate in the 19th century, Lavonen’s paintings may well seem unusually expressive and alien. One hundred years ago the Estonians were compelled to seek a professional architect from Finland who would shape their national aspirations into stone, and today we import visual arts. Still, there is more reason to be satisfied than sorry, because a fragment of the quality brand called Made in Finland is now available in Estonia, in St Paul’s Church in Tartu.

P.S. The conservation of St Paul’s Church and the architects Merja Nieminen, Kari Järvinen and Markku Nors received the architecture award of the Estonian Cultural Endowment in 2016 for the excellent knowledge of Eliel Saarinen’s architecture, for great respect towards historical substance and for the ability to think in contemporary terms at the same time.
The hall is decorated with capitals manually carved from plaster. The murals were recreated. Original ornamentation had survived mainly near the entrance. Photos by Martin Siplane

The apse murals restored after the originals and the winged altar painted by the Finnish artist Kuutti Lavonen

A small church hall was built in the crypt under the apse, replacing the former heating room

A columbarium was established underground outside the church walls, where funeral urns with ashes can be stored

A view from the columbarium into the room between the church’s foundation walls through a door the size of an artwork
I think it was 1967, when I was ten years old. My father was a mid-level employee of the national sports association Kalev and could thus book accommodation for our family for several summers at the Pärnu Stadium, which was designed by the Estonian architect Olev Siinmaa, although the name was by no means familiar to me then! It became familiar much later, during lectures by the art historian Leo Gens at the Academy of Arts. From these idyllic years with my family, I recall seeing white plastered two-storey houses, quite unusual ones, here and there on Pärnu street corners. So began my acquaintance with something unique. More conscious interest and observations followed later, probably during the first more prosperous years of the post-1991 “new Estonian era”, when it was fashionable to talk of “investment”, “renovation”, “total makeover”, “reconstruction” and so forth. My own mindset was similar: let’s fix up everything! However, I somehow became suspicious as the first renovation results started to appear. In ideology and in words, the interwar independent Estonian era was being restored and things were being fixed, yet in reality they were being destroyed.

WHAT USUALLY HAPPENED AFTER THE RESTORATION OF INDEPENDENCE IN 1991

- Replacing original roofing materials with pre-painted or tile-effect roofing sheets. Mossy Soviet-era Eternit, pre-war cement roof tiles and galvanized sheet metal were thrown out as trash. A new trend was to reconstruct flat roofs into low slope roofs.
- Replacing windows, doors and other architectural details made of well-preserved and dignified materials with ill-suited modern materials and products.
- Insulating walls with Styrofoam and other non-breathing materials. Walls were finished with “wormhole” plaster, which rendered the outer layers of precious villas attractive to birds. Plastered walls were sometimes covered with clinker tiles or, even worse, painted weather boarding.
- Indiscriminate and unreasonable installation of skylights, as if the number of skylights indicated the owner’s wealth. The record is held by residences belonging to a reputable Estonian businessman: the house at Kaarli 26 has eight skylights, while Ringi 42 has “only” six! If only the roof had been larger...
- Replacing fences and smaller details with new solutions, cheap or expensive, but never in style or fitting the context.
- Clear-cutting of Estonian-era orchards and other greenery, to be replaced with modern thuya hedges, which completely annihilated the traditional urban landscape and garden pattern. The villa district was largely spared by extending the central Pärnu conservation area to the luxurious residences in the beach area, but the ability to ignore this appears to be unlimited even today.

Against such a background, it is a small miracle that two of O. Siinmaa’s most sumptuous and valuable villas (Rüütli 1a and Lõuna 2a) were still intact at the beginning of the new millennium. Indeed, they were owned by the Pärnu city government: one housed the Sanitary-Epidemiology Station, while the other was occupied by the Maria Home for Children with Special Needs. Both were sold to private individuals during the early years of this century without considering their value to Pärnu or the region’s Estonian-era heritage in general. Everything had to be privatised. We know what happened to Rüütli 1a. It is appropriate to note at this point that Soviet-era poverty was a great conservator and heritage protector: there simply wasn’t any money to rebuild or reconstruct houses.

THE RESTORATION OF LÕUNA 2A

Lõuna 2a landed on my desk by coincidence. One fine day, probably in 2008, I got a call from acquaintances who invited me to check out two buildings for sale in Pärnu. For financial reasons, I did not become the buyer, but one of my acquaintances did. This was the beginning of long cooperation, which ended only recently. I have always found that restoration should take time and not be hasty. We started with special conditions of heritage conservation prepared by Prof. Mart Kalm. These made for interesting reading and contained precise instructions. Following this, there was the demolition and removal of Soviet-era constructions and layers, constantly revealing new information. By the end of 2008, we had completed the documents to apply for a building permit. Then came the restoration, which ended in 2013, when the final interior elements were reconditioned. Leaks from the roof had damaged parts of the building’s structure. The partition wall of the servants’ staircase had been replaced during the Soviet times due to heavy water damage.
(1) Lõuna 2a in the late 1930s. Photo by Harald Kranhals, Olaf Esna’s private collection

(2) View from the corner of Akadeemia and Lõuna streets. Photo by Martin Siipane

(3) Stair railing; a vivid example of Siinmaa’s style
caused by the slightly improper original roof design. The load-bearing wooden partition wall of the kitchen in the one-storey section of the building was almost non-existent, with ceiling beams resting on plastered brick lining. Otherwise, the house was completely preserved in its original form. All windows, doors and gates are original, as are their latches. Some door handles and lock plates were missing, but the restoration company KAR-Grupp was happy to produce the necessary copies. The quality of Estonian-era carpentry was obviously high, as it was only necessary to replace one interior door, one damaged window sill and a front door that had been destroyed. Also preserved were all of the parquet floors and stairs, and the pride and peculiarity of the building: six glazed-tile furnaces, fireplaces and stoves in various colours. Also preserved was the built-in furniture on the second floor, the first floor office and, partly, the dining room, not to mention a large number of lesser details.

The house has a very specific structure: the load-bearing walls of the first floor living room and veranda are of red clay bricks. The same material was used in the two-storey firewall on the border of the plot. All other load-bearing walls of the ground structure are wooden, made of two layers of offset vertical wooden planks with a thickness of 7.5 cm. The load-bearing structure is covered with original plastered calcium silicate brick lining, with a 6-cm ventilation gap in between. Special shutters for letting air into the ventilation gap are at the bottom of the exterior wall and the wall is vented to the unheated attic. The wooden-beam ceilings (all except for the basement ceiling) had been filled with peat. All of the interior walls were covered with original 13 mm building board, probably from Finland, affixed to the wooden frame. Aleksander Klein’s 1932 book Moodne elamu (Modern dwellings) lists at least five manufacturers of such material, but no manufacturer’s marks were found during the works. In the Rüütli 1a building, all of the original wall-covering material was removed to install extra insulation and then was replaced with plasterboard, but the special conditions for the Lõuna 2a house obliged us to preserve as much of it as possible. As with all of the construction solutions of the building, the use of this board was not consistent: some wall sections were covered with reed mats and plastered, as were all of the ceilings. We decided to strip the board from the brick walls, replacing it with a more appropriate solution: reed mats and plaster. The removed boards were used to patch damaged sections elsewhere. To avoid a lengthy description of the building’s restoration issues and technical solutions here, I recommend that anyone with serious interest examine the detailed renovation report in the National Heritage Board’s archives.

I will conclude with a few more problematic issues. Any building and renovation work inevitably involves some destruction. Some details simply fall apart in your hands, and others need to be sacrificed to certain functional necessities. This residence was no exception: we demolished the wash pot and stove wall in the laundry room, built a modern sauna in the former woodsheds in the basement, relocating the original pickle shelf in the process, etc. We were also forced to install new air vents under the cornice on the façade, as the well-ventilated cold attic was put into use as store rooms. It is hard, although not impossible, to preserve Estonian-era electrical installations: the stylish wires and switches. The original decor, uncovered in all its glory from under the plywood panels on lower wall sections, was also problematic. It offered us information on the interior design of almost all of the premises, including the historical paints and wallpapers. A few plastic bags full of material samples were gathered, all of which were worth saving. The question is: where to put them? One thing is certain: future restorers of the house will not have the joys of discovery that we did, as these layers are now absent from walls and doors. The truth would be buried in reports. We therefore intend to compile colour charts based on the samples and shades of the original interiors. This is important for a simple reason: O. Siinmaa’s interior design ideas, which have not yet been researched, appear to have followed the common decoration principles of the time, which are vividly expressed in Adolf Loos’ Villa Müller in Prague, among other places. Each of its rooms has a distinct and independent colour scheme. There is no flowing space or interior design, and each room is a single zone with its own identity. The interior architect Mari Kurismaa successfully reapplied a similar colour code to the Lõuna 2a villa. Together with new integrated furniture, which follows the spirit of the era, specially designed lighting fixtures, restored and original 1930s furniture and selected textiles, a stylish Siinmaa-esque ambience has been recreated throughout the residence.
(4) View from the living room to the dining room. Table and chairs are copies of Siinmaa furniture. Photo by Martin Siplane

(5) Stair hall.

(6) Dresser and coat rack by Mari Kurismaa

(7) Dignified fireplace and stylish interior window in the stairway. The former office, with restored furniture, now serves as a bedroom.

(8) View of basement premises, now largely reconstructed.

(9) Main stairs between the floors
In 1948, the planning of a new district in the mining town of Kohtla-Järve was begun. The typically grand scale of the Stalinist era urban planning is represented by the 50-metre wide Victory Boulevard (now Keskallee), with a rectangular square in the centre and two symmetrical buildings at either end: the House of Culture and a cinema.

The House of Culture was designed by the Leningrad department of Gorstroiprojekt, the design office of the Ministry of Construction for Heavy Industry of the USSR. Two identical buildings of this design (architects O. Kudryashova and A. Ivanov) were erected: one in the Russian power plant settlement of Dubrovski and the other in Kohtla-Järve. The House of Culture in Estonia, seating 500 people, was completed in 1953, just before the death of Josif Stalin. This post-WW2 Neo-Classical building has been characterised as monumental, grand and pompous. And it is certainly presentable.

In 2012, the design for the conservation of the building was commissioned by the city of Kohtla-Järve through public procurement. This design by the architectural firm Zoroaster was awarded a prize by the National Heritage Board a year later. In 2015 the work was completed and the House of Culture reopened its doors to visitors.

The construction project leader had to keep three main parameters under control: cost, time and quality. The circumstances were complicated not only by the scale of the project but also by the fact that fourteen different companies were working simultaneously on the site, from the basic construction work to furniture, lighting and sound installations. During these four years, nearly twenty public procurements were held for different subcontracts and in the end everything had to fit and function together.

Difficulties were inevitable under such conditions: for instance, the chairs made of oak for the concert hall had to be redesigned several times to match the changed floor levels, yet without compromising user comfort too much; the production of the cloth for the chairs by a French manufacturer specified in the design of 2012 had been discontinued by 2015, when it was time to make the chairs and a suitable replacement was hard to find; the condition of the main doors, which were initially meant to be preserved, turned out to be so poor that copies had to be made instead to fit the look and integrity of the main façade; the original oak parquet floors could not be kept either because it turned out during dismantling that they were too worn, etc.

However, the end result was worth all of these efforts: the House of Culture, a unique representative of Stalinist architecture, has been fully restored in all its grandeur. At the same time, the building has not lost its intangible and tangible historic value. It has quickly become a popular concert venue and a landmark for the city and county. This effect is strengthened by the reconstruction of the surrounding park and boulevard leading to the House of Culture.
The main auditorium slopes steeply towards the stage. Photos by Martin Siplane

The crystal chandelier in the auditorium measures two metres in diameter

The second floor lobby is adorned with Ionic columns and pilasters with Ionic capitals. Four smaller and a larger central chandelier hang from the richly decorated stucco ceiling

New carpets are decorated with local Alutaguse folk ornamentation

The original ceiling and lamps of the café were hidden for decades behind a suspended ceiling
In the years 2007–2012 the mapping of the 20th century Estonian architectural legacy which was commissioned by the Ministry of Culture was completed. As a result of this, a number of sites will be listed as monuments. The first nominees have already been entered in the register: The Fire Station of Viljandi (completed in 1977) and the Bus Station of Loksa (completed in 1939). Some modernist Soviet-era works of architecture had been listed earlier, e.g. the Olympic Regatta Centre of Tallinn, the Concert Hall Tallinna Linnahall, the Kosmos Cinema, the Kalev Sports Hall etc. The protection of modernist heritage is going to reduce the average age of the listed sites and it is going to bring new materials, novel issues and complex problems into the daily work of the national heritage experts.

Modernist architecture is familiar to us on a daily basis but it stands out in the main body of architectural monuments. Principles of sustainable and traditional building methods, canonised in the practices of national heritage preservation, often need to be adapted with these sites. The processes of fixing these monuments are going to bring out problems and questions that would be out of the question in the case of a number of other sites. Among recently renovated buildings are the Kosmos Cinema, the Radio Building in Tallinn, the Tuljak Restaurant, the Concert Hall Tallinna Linnahall and the Olympic Regatta Centre of Tallinn are still waiting for their turn. The present article is a brief summary of the experience of working on the modernist architectural heritage.

MODERNIST ARCHITECTURE IN SOVIET ESTONIA
Modernist architecture in Estonia mostly dates from the Soviet era — the 1960s and the 1970s in particular. The white functionalist cubes dating from the years between the two world wars bear certain modernist features but the new ideals in architecture became clearly visible after the end of the Stalinist suppression. New construction and building methods like transition to the method of industrialised construction and the implementation of standardised details remarkably changed the established environment, making it possible to manufacture hundreds of virtually identical buildings. In addition to standard plans a limited volume of unique architecture was created, demonstrating the aesthetic aspirations in a most outstanding way.

For that reason the current article focuses on the restoration related issues of the unique architecture of that era. Modernism in Soviet Estonia revealed the impact of global developments — an aspiration to pure aesthetics where beauty is born through a harmonious composition of volumes and the mutual harmony of honestly exposed building materials. Sadly, architects in Soviet Estonia were underprivileged in their choices of materials and this left its mark on local architecture. The shortage of building materials forced the Estonian architects to be smart and resourceful in order to achieve the desired aesthetic outcome within existing facilities.

An exquisite example of this is the fins facade of the Radio Building in Tallinn which was designed following the example of the Western office buildings with their aluminium finned, glossy glass facades. Under the Soviet regime, aluminium was meant to serve military interests first and foremost and therefore it could not be used on the facade of the Radio Building. The aluminium profile was replaced by elements of prefabricated concrete that favourably agreed with the Soviet construction ideology. According to the memoirs of Ado Eigi, one of the architects of the building, the elements were custom-made in the Tallinn Factory of Reinforced Concrete Products.

A similar “hacked” method is reflected in the original vivacious dark window glass of the Radio Building facade where the effect of a proper tone glass was achieved by a black painted asbestos sheet placed behind the plain bright 4-mm glass. This is our modernism proper: at a long distance it looks authentic, at a shorter distance it looks a bit pathetic but richly reflective of resourcefulness of the architects of the era. There is no reason to interpret the pathetic effect as inferior, a poor effort to copy Western architecture but it works the other way round because the choice of materials functions as the key to the history of the era, being an added value.

RESTORING SOVIET MODERNISM – DO DIFFERENT PRINCIPLES OF RESTORATION APPLY?
Looking at the recently restored work we notice that a number of methods taken for granted in the restoration of older buildings seem to be invalid with modernist architecture. Reconstruction, generally considered unacceptable by national heritage authorities is a fairly common method with the modernist architecture. Furthermore,
(3) The Kosmos Cinema after completion in 1964. Photo from the Museum of Estonian Architecture

(4) The Kosmos Cinema after restoration. Photo by Martin Siplane
(5) The Tuljak Restaurant in the 1970s. Photo by Oskar Vihandi, Estonian Film Archives
(6) The Tuljak Restaurant after restoration. Photo by Tõnu Tunnel
the process of reconstruction hardly ever carefully copies the original architectural solution but it uses a method by which the invisible parts or the hidden structures of a building are fixed with contemporary materials and only visible parts imitate the original solution (reminiscent of the 1980s sham-fond restoration practices, isn’t it?). The restoration of Tuljak, a cult café and restaurant from 1964 in Tallinn, is a good example of these practices. A compromise was reached by completely demolishing the backside of the building (a kitchen block added in 1971, designed by the architect of the café Valve Pormeister) and reconstructing it later in order to accommodate an underground car park. Since the reconstruction work was carried out in the same volume and it followed the original drawings, it is highly likely that the outcome is going to look more like the original than the pre-demolishing structure distorted with its numerous additions did. After the completion of restoration the boundary between new and old is solely marked by a slightly differently coloured brick cladding (no-one will be able to see a different inner wall construction). The orangey bricks produced at Tallinn Construction Ceramics Factory are simply no longer available and builders had to be content with other producers’ bricks of a slightly colder reddish tone.

This demonstrates another specific problem of modern architecture — the unavailability of once widely used industrial products and finding replacements for restoration; materials like lime, limestone and timber cause a lot fewer headaches. The authors of the current article will not be pulling their hair out over the incident with Tuljak but it might be a good idea to play with the idea of using the same method in a building in the Old Town — let’s demolish a 19th century courtyard outbuilding as an architecturally insignificant structure, let’s build an underground car park and reconstruct it with Columbia bricks, later let’s render the walls and no-one will recognise it as new. The National Heritage Board would most probably not approve of this project but where do the double standards in restoring modernist buildings come from?

The change of the essence of architecture in the 20th century definitely plays a key role in it; the artisans’ unique craft was replaced by uniform mass produced elements (e.g. carefully fitted limestone walls vs factory produced uniform prefabricated blocks). This has led to a shift where in the case of newer architectural heritage the original materials, lacking the value of uniqueness or age, are no longer of a primary value and authenticity is mostly defined by an architectural idea. However, in the context of Soviet modernism we should not declare all constructional solutions to be bland mass production. Since the choice of building materials was limited, special solutions, resourcefulness and craft were essential. Architects and interior designers of the era had resourcefulness galore, living proof of it being the legendary ceiling of the hall of the building of the Central Committee of the Communist Party of Estonia, all covered with empty fish tins. Special craft solutions in interior design tended to be the most expressive.

The restoration of Soviet modernism likewise occasionally requires finding solutions that are „out of the framework“. An essential part of the original design of the dining room of Tuljak café had been a dark ceiling boarding. There was no doubt that from the point of view of architectural integrity, this element was essential and it had to be preserved in the new interior design. With the whole roof being replaced, the method of reconstruction had to be applied. Everything went smoothly until another layer of dark stain had been applied on the ceiling boarding. The exposed knots on the sides of the boards did not sufficiently absorb the stain and in consequence the ceiling looked as if the decorators had executed some extraordinarily sloppy brushwork. Clearly such a mish-mash ceiling is no good but what would be the solution? Since ripping the boards off was out of the question due to a nearing completion deadline, the graduates of the Estonian Academy of Arts Department of Cultural Heritage and Conservation, known for their sensitive approach to fine manor paintings, were summoned. After testing a few materials, the conservators came up with the decision to use the combination of a dry pastel and a carbon pencil that they applied to the ceiling square metre by square metre. Applying such fine retouching techniques in a Soviet modernism site definitely seems a bit absurd but the end justified the means and the final result fulfilled all expectations.

**WHICH OF THE TWO – AN IDEA OR A MATERIAL?**

Valuing an architectural idea should not mean that the replacement of an original material is taken for granted. The original materials and constructions of modernist buildings all tell us their story about a slightly absurd era and therefore they bear historic value in the same way as the stones and mortar in medieval walls and the replacement of materials always makes a part of (hi)story disappear. Just from this aspect we would like to be critical about the renovation of the Radio Building in Tallinn where appealing to the original idea of the architect (but most probably for the sake of simplicity and costs of building) the original concrete fins were replaced by aluminium fins. The outcome is a building more similar to the sample Western office buildings in the mind’s eye of architects back then, but the story of the Soviet construction reality hidden in the materials that made the Radio Building special in the history of the world architecture, is gone and as a result, the building with its bright facade makes a completely anonymous impression as one among many similar buildings.

They key question in preserving and restoring the Soviet modernism in order to keep, most significantly the right feeling, is to identify what should be preserved and restored. Unlike in older buildings, they often lack long lists of valuable details the preservation of which defines
the levels of successful restoration. At the Kosmos Cinema the metal door handles, once made especially for the building, were one of the few preserved original details. There were practically no valuable details to be preserved at the Tuljak Restaurant either, apart from the miraculously preserved original lamps and sticks of nondescript purpose attached to a few metal posts. The lack of restorable details cannot be put down exclusively to the wear and tear of time which had not been overly amicable to Tuljak. One could also blame the architect Valve Pormeister or the modernist mentality in general. Minimalist buildings were made impressive by various finishing materials, their tone and texture: wooden surfaces treated with a dark stain in harmony with fresh pure concrete surfaces and a warm red brick wall. A careful restoration following best practices is the priority in such cases. The original walls of ceramic bricks laid in decorative wall patterns in the interiors of Kosmos Cinema had meanwhile been covered in solid cement plaster that was carefully removed. Then all the walls were examined in detail and the damaged bricks were marked. Luckily, the replacement material was all there, as in the demolishing of the kitchen block a sufficient amount of Soviet time bricks of required measurements and shades of colour had been put aside. The last stage was fine cleaning which was rendered by a low pressure (1 bar) abrasive method, utilising as an abrasive, an aluminium silicate Rotec Glaspudermehl, with the fraction of 0.09–0.25 mm. Although the strength of cleaning was tested on a sample plot in order to select the pressure that would clean the surface without damaging bricks, the bricks turned out to be of different strengths and occasionally the pressure was too strong, leaving the surface slightly rough, identifiable at a close distance.

Repairing the exposed concrete surfaces at the Tuljak Restaurant was a big issue. The method is used worldwide but it has hardly been used in Estonian restoration practices and it tends to cause headaches. The immediate surroundings of the café building include a terrazzo-tile covered terrace, an ice-cream kiosk and a tunnel-like entrance at the sea facing side. They had all been designed as pure concrete surfaces with somewhat
different facades and in order to find an individual finishing style for each site, a number of sample plots were made. Still, the final result was of a varied quality, the ice-cream kiosk entailed some nearly ideal repairs, whereas the entrance tunnel demonstrates a more varied quality, caused to some extent by the tight deadline.

**THERE ARE MORE PROBLEMS BUT CERTAINLY THERE ARE SOLUTIONS TO ALL THESE PROBLEMS**

A specific problem in the restoration of Soviet modernism is the poor quality of the authentic Soviet-era building materials. Paradoxically, it has become a characteristic feature of a number of buildings. The originally poor material was the reason why the supporting structure of the viaduct in Tallinn Power Station had to be replaced. The perforated brick facade of the Kalev Sports Hall has turned out not to be weatherproof and most of it was replaced during the recent renovation. The concrete fins of the facade of the Radio Building, the replacement of which we did not approve of, were actually in a dangerously poor condition. A mesh net installed above entrances served to protect people from getting hit by falling pieces of concrete.

In addition to the quality of materials other weaknesses of the Soviet architecture have become apparent due to changing ways of life and a different organisation of society. The buildings studied in this article were built at a time when the Soviet Union was at its peak and the amount of energy needed for heating, exploiting and maintaining these buildings was not an issue. Hence the problem of thermal insulation is as acute as in the restoration of older buildings.

Certainly there are more problems and certainly there are possible solutions to all these problems. It is important to be willing to work them out by any means and to be as creative as our Soviet-era colleagues. The top architecture of Soviet modernism in Estonia is worth a best possible restoration.

**SITES MENTIONED IN THE ARTICLE:**

**Kosmos Cinema, 1962**

One of the best examples of the post-war modernist standard planning. It is a remake of a cinema building designed in Moscow for Lithuania (architect Ilmar Laasi, 1962–1964).

The Kosmos panorama cinema in Tallinn, when completed in 1964, was the only widescreen cinema in Estonia. The general shape of the building is defined by its wide, graded hall with curvy rows. The architectural solution is based on the principle of contrast between windowless, pure brick joint walls segmented by vertical furrows and a glass wall of a lounge and a part of the foyer and a thin concrete shelter boldly arching over the entrance. Following the surrounding landscape, the design of the cinema building extends smoothly to the green area between the terrace with its three graded dish-shaped fountains and the blue spruce.

**Restoration:** 2014

**Tuljak Restaurant, 1964**

The main part of the building is dominated by large glass surfaces in a vigorous white framework on a low cement plastered base, orange brick surfaces with a wall pattern and the dark heavy wooden cornice covered by a horizontal boarding.

The terrace projects the slope by a monolithic reinforced concrete construction, originally the slope in front of the terrace was to be planted with groups of coniferous trees. The period round copper lamps contributed to the minimalist look.

The Tuljak Restaurant was designed at Eesti Maaehituspjekt in 1964–1965 by Valve Pormeister. It was built as an extension to the Lillepaviljon (the Flower Pavilion), an extremely popular exhibition site and a sample garden that needed a place serving food and drink. The interior of the café was designed by interior designers Väino Tamm and Vello Asi. In 1970/1971, a larger kitchen block was designed as a separate extension, the previous kitchen space was converted into a café area and a cloakroom. Later the café was converted into the Carina restaurant and the functions and the design of the rooms were changed. The restaurant operated until 2002 and after its closure the building was empty. Reconstruction and restoration work began in 2014.

**Restoration:** 2014–2015

**Radio Building, 1972**

A stylish example of the modernist architecture of the 1970s. The building comprises two complimentary parts. The ten-storey main building of prefabricated reinforced concrete details has retained its original function — it accommodates the offices and workrooms of the Estonian Public Broadcasting. The height and airiness of the building is accentuated by the evenly distributed fins on the main and the rear facades.

The Radio Building, designed by architects Ado Eigi and Jüri Jaama, was built in 1972. An extraordinarily light, airy building was created at the peak of mass construction and prefabricated reinforced concrete buildings, regardless of a limited choice of construction options.

**Restoration:** 2014
An alien ship from science fiction, a new age pyramid, the Soviet Estonia’s most extravagant building, an architectural masterpiece of the 1970s. These are just some epithets describing the Rapla KEK building, a key location in Rapla, designed by the architect Toomas Rein.

Toomas Rein designed the building as an office block for a collective farms’ construction office (KEK). No restrictions were imposed on the architect, or more precisely, the client desired a striking looking building. Immediately after its completion in 1977, it became an iconic landmark in the Estonian and Soviet architectural landscape. The building received coverage in international professional journals and it is still popular today in reviews of the modernist architecture of eastern Europe.

The octagonal building has only two floors. In the middle of the building there is a sports hall with a skylight and the hall is surrounded by a circular hallway. The hallway is lined with offices, providing the facade with rows of ribbon windows. The basement used to accommodate a bar and a sauna. At its peak in the 1980s it hosted sports and dance competitions, films were shown and parties were held. Everything in the building from the main plan to the door latches, furniture and dustbins, is octagonal.

The architectural value of this one-off office building KEK, is not restricted solely to Raplamaa but it is significant for the whole Estonian culture. It is of international renown and has been introduced in several international architectural magazines, exhibitions and books. Time and again it attracts the attention of international observers with its impression of a hovering pyramid on a dark blue base, recurring in the form of a negative on a landscape with its pool and terraces. On account of its special novelty architecture and its cultural value, the building was listed as a national monument in 2015.

**PUBLIC AND PRIVATE INTEREST IN LITIGATION**

The owner of the building contested the act of designation. It is important to point out that the contest was not about the cultural value of the building but the restrictions on the owner resulting from the status of a cultural monument. In other words — how are the public interest and private interests addressed by this building’s status. According to the Courts of the First and the Second Instance the decision remained in force. The Supreme Court chose not to hear the appeal and with that, the

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(1) The surroundings of the building of Rapla KEK has been designed in accordance with its design. Photos by Ingel Vaičla
court decision entered into force in February 2017. Hence, the building of Rapla KEK remains a listed architectural monument.

Both parties acknowledged the value and uniqueness of the building. The owners of the building possess one of the most interesting buildings in the town and beside the church, it is definitely one of the main landmarks of Rapla. According to the owner, the status of a listed building would restrict his business activities. The Ministry of Culture disagreed and the court agreed that the status of a listed building will neither make the implementation of the owner’s wishes impossible nor make it significantly harder. The status of a listed building will not impede the continued running of the building as an office building and it does not rule out other options for utilization. Neither would it impede renovation, increasing energy efficiency or modernising the interior.

Beyond doubt, the listing needed to be thoroughly thought through and reasoned. Both, the public and private interests had to be taken into account. The court found that in the case of Rapla KEK, the contestant’s interests and property rights had been considered and the public interest in preserving the architectural monument in as authentic a way possible were more crucial than the restrictions of property rights caused.

The court points out in its decision that the designation cannot be contested by general statements claiming that the owner would have more opportunities to implement his real estate property rights without it. If that were the case, it would be impossible to list any building as a monument.

It is important to keep in mind that cultural heritage, including architectural monuments, are under protection according to the preamble of the Estonian constitution, just as property rights are a constitutional requirement. Section 32 of the Constitution protects an owner from the transfer of ownership but it does not prohibit the setting of restrictions on the implementation of property rights in the public interest.

**MODERNIST ARCHITECTURE AND CHANGED PRACTICES OF LISTING BUILDINGS**

This court contest was extremely important from the heritage conservation point of view and it demonstrated, among other things, that lots of aspects need to be considered in the process of listing buildings as national monuments. The introduction of modern architectural heritage into the scope of interest of heritage protection authorities has expanded the understanding of cultural heritage and it has taken the heritage-related debate out of professional circles. Among other things it has also changed the procedures for listing buildings. It is impossible to list increasingly newer and ideologically controversial buildings in isolation, based solely on the expert opinion. In order to explain these processes within the professional field and to the public, the heritage protection authorities have had no other choice than to abandon their academic, history-of-architecture-based approach. Broad-based research projects and discussions on controversial buildings need to be carried out with their owners and residents.

The topic of the protection of Soviet-era architecture in Estonia came up fairly soon after restoration of independence in 1991, but it peaked in 2006–2007 when the former Political Education Centre for the Estonian Communist Party (Sakala Centre, built in 1982–1985) was being torn down in Tallinn city centre. Regardless of the 10 000 signatures collected in favour of keeping the only twenty-year-old Sakala Centre, it was demolished. The demolition of Sakala Centre gave rise to a nationwide research project “Mapping and Analysing Valuable 20th Century Architecture in Estonia” initiated by the Ministry of Culture and the National Heritage Board, carried out by the Estonian Academy of Arts. The project thoroughly analysed the architecture of the last century and by comparative analysis it selected buildings and sites that characterise 20th century architecture in the most expressive way. From a list of over three thousand sites, about a hundred were shortlisted for future designation as national monuments. The goal for the coming years is to complete the job by adding these sites to the current list of monuments. There is a fair amount of Soviet-era architecture among the designated sites. It makes sense, since in comparison with the Tsarist Russian era and the interwar Republic of Estonia’s era, the sites of this period are poorly represented on the list of monuments. Listing the building of Rapla KEK is a result of this research project.

**PROTECTION OF 20th CENTURY ARCHITECTURE**

One prejudice that frequently occurs in debates on Soviet-era architecture, is the option of listing collective farm office buildings. The collective farm landscape is not an obscenity for architectural historians. Thanks to the wealth and ambition of collective farms, a number of architectural innovations took place in the 1960s and 1970s. Office buildings and civic centres designed by top architects of the time, became the beating hearts of large collective farms, demonstrating their wealth. In the 1970s collective farms began to restore historic architecture. There seems to be enough material to choose from but unfortunately most of the one-time masterpieces have perished or are about to perish.

No collective farm buildings had been listed in Estonia prior to Rapla KEK. The previously mentioned research project shortlisted only two examples of collective farm architecture that have been preserved sufficiently and also possess enough vitality and utility potential. In addition to Rapla KEK there is Linda collective farm office building in Võrumaa County. We have lost most of the best collective farm architecture since regaining independence.
Urban Soviet-era architecture has had better luck. Stalinist as well as modernist architecture had already been listed in the 1990s. For example, in 1997 by one directive six modernist buildings were listed: the Flower Pavilion (1958–1960), Tuljak Cafe (1964–1966), Kosmos Cinema (1962), the Pavilion of the Baltic Railway Station (1962), the former headquarters of the Communist Party (now Ministry of Foreign Affairs, 1968) and the Radio Building (1972). Five of them have been restored by now.

In the last three years eleven 20th century buildings from the research project have been listed. Rapla KEK is the only one that involved a court contest and sadly it has remained empty.

MODERN MONUMENTS ARE A CHALLENGE
Allegedly no less than 75 % of the built environment in Europe where people live and bustle about, dates to the post-Second World War time. In Estonia this percentage could be even higher. Coping with this volume of buildings is not easy. In addition to construction, social and planning related problems, there is a challenging heritage conservation aspect to be considered as well.

On the one hand new materials could be a challenge, on the other hand, dealing with new buildings might be a lot simpler in comparison with a medieval merchant’s house or a church. There is no need for complex examination, there are no ‘surprises’ like wall paintings popping up, drawings are available in the archive, the architect of Rapla KEK is still around if necessary.

A much greater problem is finding new relevant functions for these buildings. Soviet-era buildings tend to be too large for contemporary needs and they are poorly built. Rapla is ca 55 km from Tallinn with a decreasing, ageing population and this has an impact on local life, including the utilisation of buildings. The specific shape of the building has rather been a drawback for investors but attitudes to the building are definitely not negative. Residents of Rapla associate extremely positive memories with the building and its standing locally is still very high.

In the case of the building of Rapla KEK, its status as a monument does not impede its future utilisation. A monument does not mean a museum. On the contrary, the recipe for preserving buildings is to keep them in use. Sadly, this building has remained empty without any tenants.

Listing as a monument does not necessarily impose restrictions on the functions of a building. Renting rooms for offices, sports facilities, shopping and services would be relevant as thereby the original functions of the building would be retained and the scope of utilisation could even be expanded.

In 2013 Tallinn Architecture Biennale invited ‘Failed Architecture’, a research group of Dutch urbanists to organise a workshop on recycling Rapla KEK. The theme of the Biennale was ‘Recycling Socialism’. Participants discussed with experts, civil servants and local residents the reasons why the building had fallen out of use and possible ways to improve the situation. The building’s history, earlier functions, its impact on the urban space and residents’ opinions were studied. Finally suggestions were made to revive the building and the district. Examples include Toomas Rein Museum of Architecture; a complex of galleries and artists’ accommodation; a nursing home for architects; a prison; a recreation centre or a spa; an adventure park for children (a labyrinth) etc.

There are no universal solutions for unique buildings. In order to preserve heritage all stakeholders should try to find solutions together. One of them is definitely the state and national heritage authorities but finding functions for valuable buildings is also an opportunity for local governments and local residents. The ties between local residents and the local heritage is key. A unique listed building in a small town implies a great opportunity to bring out the specific character of a hometown. It can easily become a competitive advantage.

1 https://www.tallinnarchitecture.com/la-mobile-rapla-and-tallinn
SYMBOLS IN DIALOGUE:
BLACK AND PINK IN VILJANDI

Karin Paulus

One of the many wonderful landscapes in the picturesque small town of Viljandi is Valuoja and the area of its pond, where various buildings have been sensitively arranged. Among them is the Theatre Ugala (1981), perhaps a bit too large for the town. The theatre was thoroughly renovated in 2015 – 2017. An even more powerful symbol on the other side of the pond is the former primary school, now a secondary school. By the autumn of 2013, an extension was added to the original building of 1926–1928, thus enabling the school to follow a new educational model. The school offers no fewer than seven fields of study: mathematics-physics, natural sciences, foreign languages, the humanities, social subjects and the arts and economy. The extent of the project is evident in the cost of the building and renovation, carried out by State Real Estate Ltd, 5.4 million euros. This had an impact on the entire school network in Viljandi and in the surrounding area. The older part of today’s school (Viljandi Gümnaasium) was designed by the architects Erich von Wolffeldt and Aleksander Nürnberg (with the cooperation of Tõnis Mihkelson), who ran an architectural office in Pärnu. The art nouveau-neo-classical style building, initially intended to be the local primary school, was never completed, as the planned second wing and gym were left unfinished. In the 1960s the school got an unsuitable extension: a three-storey building articulated by vertical strips of red brick. The citizens of Viljandi thus did not mind in the least that the school reform brought about not just the demolition of the Soviet-era monster, but also the construction of a building with modern architecture. After a competitive public procurement rather than a classical architectural competition, a design by Salto Architects was chosen. The project suggested an addition to the existing schoolhouse, much appreciated by the pupils, which despite its size would respect the old, but would still stand out clearly and look like a striking horizontal accent from a distance. The entrance was moved to the new wing, avoiding excessive grandeur. In Salto’s approach, architecture is not a monument meant to be admired, but an environment that can be used with ease and comfort. Similarly to traditional rural cellars or the Tallinn City Concert Hall (1980), it is possible to walk on top of the building. The surroundings have been turned into a friendly, inviting landscape, a place to spend breaks or even conduct lessons in fine weather. Besides classrooms, the new “black house” has a cloakroom and a spacious open area for resting and studying, which includes a cafe, steps to sit on and relax, and a library.

The key word in this building is openness. “We probably all remember a stinking canteen in a basement at our schools or a library open at fixed hours where you did not dare enter as you still owed them a book or two,” says one of the authors of the new extension, the architect Maarja Kask. Now the library is literally open all the time. According to Kask, the panic of security demands finally seems to have subsided in Estonia, i.e. it is not that terri-

(1) The new and the old side by side. Photo Karli Luik
ble if a book has been lost, and it is much more important to encourage young people’s curiosity and to get them to read. The grim canteen has been replaced by a trendy cafe, where the students and teachers can order the food they like and consume it either sitting properly at a table, or they can be cool and enjoy it sitting on the steps. The new common areas are emphatically democratic, whereas in classrooms the focus on the teacher is unmistakeable, which is probably inevitable considering today’s study programmes and the large class sizes. Here, too, steps are used, which are present in all recent schoolhouses here and elsewhere. In accordance with the general concept, the interior architect Pille Lausmäe stressed simplicity and naturalness. She introduced colour, for example, in the back walls of classrooms, which does not disturb concentration, but adds zest to the rooms. Besides general lighting, there are other lights which create a more pleasant atmosphere. Unfortunately, many ideas were not realised because of the inflexible attitudes of State Real Estate Ltd. Lausmäe and Kask say that the sharpness and angularity of the new building was supposed to be mellowed by warm and pretty wooden floors and steps, which were not allowed, and the authors had to replace them with epoxy flooring. One of the foremost Estonian interior architects states resolutely: “I am not sure whether this is the right place to say this, but we should never rely on public procurement for furniture. Such rules make it impossible to create a whole.” The schoolhouse is, nevertheless, both inside and outside, among the most imposing recent buildings.

The new building also encouraged the reinterpretation of the historic schoolhouse. The main colours of the new building are black, white and the colour of wood, complemented by accents of single clear powerful colours. The old building, with its soft restrained pastel shades, seems extremely delicate in contrast. Perhaps the most questionable area is the passage from one building to the other, which is not particularly organic; the steps and the difference in height should have been avoided. According to the interior architect Pille Lausmäe, “it is after all a wooden building. We sought to maintain the old while following today’s regulations. The Estonian Rescue Board set especially hard requirements.” Lausmäe tried to also balance the past and the present through colour schemes and the choice of materials. It was crucial to produce an agreeable study environment, and thus only one classroom retained its authentic dark colours as an example. In order to meet the demands of lighting and acoustics, new technology was used, e.g. acoustic plaster and plates. Lausmäe added that in the interests of preserving the old, modern methods were applied as discretely as possible. The symbiosis of the old and the new buildings of the Vildandi secondary school makes one wonder whether studying might be overshadowed by architecture. What kind of learning models would make the children’s eyes sparkle even more?
A gentleman on a bicycle stops and asks, irritatedly, how it is possible to build such a completely new house right next to the theatre. And so close to other old houses! Surely another case of complete ignorance of heritage protection rules!?

Designed by the architect Raul Vaiksoo in 2016, the Rakvere Theatre Cinema received a National Heritage Board award as a new building mindfully accommodated in a historical environment. A welcome addition to the local cultural scene, the cinema also provides officials with an opportunity to explain the nature of a heritage conservation area and the modern principles of heritage protection.

The Rakvere city government moved out of the Old Town in 2016. Many buildings in the heritage conservation area are empty and each year brings sad news of fires in the area. Thus, the cinema is great news for Rakvere and its heritage area, reflecting hope that the town’s historical centre will not die out after all.

Several other plots in the area that have been left empty in recent years are awaiting the construction of new buildings, which will stand side by side with the old ones. The principles applied in designing the cinema could serve as an example here. After all, architects are seldom so well acquainted with the history of the planned construction site as was Raul Vaiksoo. He was involved in the pre-design archaeological research of the site and approached the excavated walls with great interest and respect. Aware of the heritage and looking to the future, the building was dubbed “A Remnant of Lost Time” by the architect.

The cinema was built on a site with abundant heritage. The history of human settlement in Rakvere probably began with an ancient settlement right here on Theatre Hill. In the 16th century, this was the site of a Franciscan friary and later it was a manor complex. The cinema sits on the spot of 18th century stables, demolished in 1939, and roughly follows their size and location. The historical building extended some 10 metres further south to an area now covered by a road. Just a section of the new building’s glass roof now extends over these lost walls. Inside the cinema, the walls of medieval buildings have been conserved and exposed, as well as part of the foundation of the 18th century stables. Besides the cinema, the compact structure also accommodates the theatre’s new rehearsal room.

Completing the cinema was no easy task. The process started with archaeological excavations in 2006. Construction started only in 2015, but then stopped again as the building contractor went bankrupt. A new contractor was found and the project was finally completed after overcoming tensions and issues arising from ruins and skeletons unearthed on the site.
INDUSTRIAL HERITAGE
The following critical discussion examines whether industrial heritage should be restored or, instead, reconstructed. This article is based on examples from Tallinn, where tension between these two actions is perhaps the strongest and where quite a few projects have already been carried out.

Estonian contemporary architecture is often praised for its innovativeness and freshness. During the broadcast of the 2016 architecture awards of the Estonian Cultural Endowment ceremony, the Finnish architect Kari Järvinen, who did the restoration designs of St. Paul’s Church in Tartu with Merja Nieminen and Markku Nors, and had just become the laureate of the annual architecture award, said: “Here, in some sense, it started with a clean slate in the 1990s.... I admire this freshness and bold approach in Estonian architecture.”

If we now look at Finnish industrial heritage, it seems that society there views it more conservatively. It is considered equivalent to other forms of heritage not only because industrial heritage in Finland is varied but also because industry is still one of the pillars of the Finnish welfare society. The fact that a number of internationally acclaimed Finnish architects, e.g. Alvar Aalto and Viljo Revell, have designed both individual factories and whole industrial complexes certainly plays a role.

Are Estonians not showing the same respect for their equally rich industrial heritage? There are numerous industrial heritage sites on the heritage list. For example, there are around ten large historical industrial complexes under protection in Tallinn, ranging from the Luther Plywood Factory to the Rauaniidi Factory, soon to be the new building for the Estonian Academy of Arts. Elsewhere in Estonia there are the Kreenholm large-scale complex in Narva, the Sindi textile factory and others. In addition to the major complexes, some smaller single industrial buildings and facilities are likewise listed as national monuments. In 2016, the Tudulinna hydroelectric power station and the dam for the Linnamäe hydroelectric power station (which had been the focus of some skirmishes between environmentalists and heritage conservators) were listed.

Unfortunately, official listing does not mean automatic respect for industrial heritage. Can heritage protection contribute to the integrated and sustainable preservation of the listed industrial heritage, i.e. heritage that is officially recognised as valuable?

ROTERMANN QUARTER

The Rotermann Quarter in the centre of Tallinn is considered an outstanding combination of contemporary and historical industrial architecture. Indeed, several well-known contemporary architecture firms have completed projects there, for example Alver Architects, Architectural Bureau Emil Urbel, Kosmos and KOKO architects. The modest wood workshop with its three striking glass towers built by KOKO architects in 2008 received international attention. Less recognized is the barley mill and adjacent small cold storage restored a year earlier by Vahur Sova. Besides the walls that were in danger of collapse after a fire, they managed to preserve the hopper on the side of the mill. The mill’s exterior was preserved, as it had also been placed under protection. The added value of this simplistic utilitarian building comes from the context of the surrounding industrial complex.

In 2001, Alver Architects drew up a zoning and planning scheme for the Rotermann Quarter, which, in a somewhat amended form, was the basis for a detailed spatial plan, which, in turn, served as a basis for the subsequent construction design.

The explanatory memorandum of the enactment of the detailed spatial plan states: “There is a 2-4 storey flour, wheat and rye mill on the plot, intended for reconstruction. The maximum permitted number of storeys of the buildings is set at seven floors above ground level.” Thus, in 2014, Andri Kirsimaa designed a five-storey extension on top of the two-storey flour mill, which, according to the detailed spatial plan, “is in accordance with the Rotermann Quarter’s historical building structure”.

The massive block covering the three original buildings like a heavy blanket on top of two-, three- and four-storey flour, wheat and rye mills, completed in 2016, is unfortunately a fait accompli. It is a contemporary building, “decorated” with a few floors of facades of historic industrial buildings. This extension is also one of the largest among the already finished and yet to be designed additions in the quarter.

The Rotermann quarter is a perfect example of the industrial heritage reconstruction principles that prevailed in the late 1990s. These were mainly based on two axioms: firstly, in order to start using industrial heritage it was necessary to extensively reconstruct and, if required, complement with extensions; secondly, there was an
The main street of the Krull machine factory, where a railway ran down the middle of the street just ten short years ago. The historic building complex from the 19th—20th centuries has yet to feel the touch of a developer. Hopefully, the scale of the complex, besides the valuable buildings and details, will be maintained. Photos by Henry Kuningas (2014)

Rotermann flour, wheat and rye mills before reconstruction in 2013

Rotermann flour, wheat and rye mills after reconstruction in 2017

Work in progress at the historic Grünwaldt leather and shoe factory in the Maakri Quarter. An established zoning plan from 2008 makes it possible, among other things, to build up to a 30-storey building attached to and partly within the historic building. The reconstruction and building project was compiled by Ars Projekt in 2012. Photo from 2017
implicit realisation that this heritage was less sensitive than other types of historical heritage and any type of reconstruction could be carried out due to its large scale. These principles can be considered outdated ideas in heritage politics. However, it’s alarming when they are mechanically adapted to large-scale reconstructions of industrial complexes.

SOCIAL AGREEMENT?
A significant part of the historical industrial heritage of our charming capital is, for developers, located in acceptable and interesting areas, some even in the city centre. Real estate entrepreneurs are motivated to regenerate empty industrial buildings primarily for the profit they hope to gain from the development projects, while generally working within the limits of communally accepted principles. Respected members of society in most cases do not spit on the streets, but do offer seats to older people and respect their own and our common heritage. But why do otherwise polite people at times treat the industrial heritage like an old coat that has to be unrecognisably changed to be reused?

It seems that our heritage politics can be described by the well-known saying that we are all equal but some are less equal.

I will try to convey this through a couple of examples. Although there is not a legally established two-levelled heritage protection system in Estonia, this kind of phenomenon works in the form of sites and heritage conservation areas listed by the state and in areas of cultural and environmental value established by local governments. As practice shows, the success of local conservation depends on the competence of local authorities and on co-operation with the community, and generally it works. Rules established for areas of cultural and environmental value are generally followed by city authorities, residents and developers. Very few would consider building four more floors on top of a two-storey residential building recognised as highly valuable or of environmental value, for example in the area of Kalamaja in Tallinn. Loud frustration expressed by residents represented by a well-organised neighbourhood association can be imagined, even if the building were not under state protection. Basically, here the community has reached an agreement on their opportunities and limits.

The next example could be taken from a theoretically stronger protection area, in other words from sites that are on the national heritage list, i.e. under state protection, whether it be a manor granary, historic culture centre or even an apartment building in a national conservation area. In these cases it is often desired to maintain the valuable structure and details in the interior, in addition to the exterior. It is generally accepted that doubling the height of these buildings won’t happen. It is true that utilitarian-looking industrial buildings do not generally appear attractive enough to outshine an extensively converted building with a striking modern architectural element. But do we value our heritage based on how striking and modern it is? It would be reasonable to assume, when using industrial heritage, that the goal is to adapt an existing building into a new function with respect, ideally maintaining, besides the building’s structure, at least some part of the installations connected with its original function.

For the success of the development of a large industrial complex, added contemporary architecture is definitely welcomed, as is occasionally removing some parts, but preferably not doing so at the cost of historic architecture. A new architectural solution should highlight maintenance of the character and valuable elements of a historic industrial building, while adding contemporary solutions.

From time to time it is fitting to recall Mies van der Rohe’s motto “less is more”: restoring industrial heritage is better than reconstructing. Maybe it is time to make a new social agreement that places value on industrial heritage and its multilayered roughness while moving on to more sustainable and comprehensive solutions? Being a Nordic country not only means fast mobile internet connection but also similar principles regarding heritage politics.

On a positive note, in recent years many industrial buildings all over Estonia that are not listed are being restored or put to use to some extent, e.g. the Enrichment Factory of the Kohila mining park, opened in 2015, the shopping centre at the Arsenal military factory in Tallinn, opened in 2016, and the gradual and sustainable use of the Telliskivi Creative City in Tallinn and the Widget Factory in Tartu.

Perhaps these are signs of increasing widespread understanding of the value and potential of industrial design.
The construction work on the notable Noblessner submarine shipyard in the immediate vicinity of the strategically important Mine Harbour began in 1913. The general layout of the buildings located in the territory was drawn up by the engineers of the renowned Danish engineering office Christiani & Nielsen, who most probably earned a little extra while designing the seaplane hangars on the adjacent plot.

There will be reason to write about the complex as a whole in the future, when most of the buildings have been restored. It is, however, worth noting that this ensemble boasts the largest number of buildings among our listed monuments. Of this valuable architectural heritage, only a handful of buildings have been restored, but the recently restored former main Noblessner materials warehouse, now called the Creative House, is attractive enough to merit a few words.

The warehouse building located by the railway viaduct on the southern side of the lower seaside plateau is an integral member of the shipyard. In terms of its architecture, the building is a representative of the Gothic Revival style, with its axed limestone façades and arched windows. The façades are rhythmically articulated by narrow buttresses that widen towards the base. The massive pillars were used for distributing the load across the industrial building.

The building was designed in a rather traditional key for its time: concrete ceilings and a metal truss roof structure, together with a tall glass lantern on the ridge.

Historical details in the interior include massive riveted load-bearing posts. Of the original interior design, the currently very fashionable full-mass honeycomb floor slabs have partly been preserved and displayed. These are particularly attractive thanks to the neon tones unique in Estonian industrial buildings. With their combinations of colour, these slabs probably pointed the workers to their work benches or marked evacuation routes. As the slabs had been cast into the floor with the high work quality characteristic of the Tsarist period, only about a third of them could be extracted whole and were used in the interior design of some of the more eloquent rooms.

According to Rasmus Tamm, the leading architect of Ars Projekt and the author of the new solution of this building, creative collectives were set as the target group in reconstructing the warehouse building: they need an inspiring environment for their work and their presence would help to create a strong new identity for the Noblessner Quarter.

The quarter has always had an attractive essence and potential thanks to the visual, climatic and urban-space-based contact with the sea, as well as the proud industrial heritage. Although in the future this will be an area of different free-planned business, production and residential quarters, there are currently design projects only for the plateau immediately by the sea.

The transformation of the former Noblessner shipyard into a poly-functional centre is a part of the long-term development direction which will open Tallinn’s waterfront and coastline. The Noblessner Quarter in Kalamaja can be considered a pioneer in this area, and soon most probably it will be a highly regarded and coveted location.
“In our days there are but a few occasions in people’s work and activities where the electrical engine does not help.”
Engineer V. Vahe, 1913

Upon visiting the Energy Discovery Centre in Tallinn, all visitors will have their hair standing up, that’s for sure! Some when admiring the architectural quality, others when walking in the historical turbine hall, some in the planetarium or science theatre, but definitely everyone at the statics demonstration. I particularly recommend this to the ladies — it is an experience!

The centre has more than 130 exhibits, which are all worth talking about at length, but let’s focus on the building. In the old days, electricity manifested itself for people as the scary phenomenon of thunder and the artificial generation of electricity began for the citizens of Tallinn only on 28 March 1913.

Industrial enterprises in Tallinn have produced electricity since the beginning of the 20th century and the major players, such as AS Volta and Schuckert & Co, tried to get permission from the city to sell electricity for street lighting, the port and private consumers, but the city government kept rejecting their applications. The position was clear: power generation should be controlled by the city.

At first, the city held a competition for the production of turbines, which was won by AS Volta with three 250-horsepower Lavalt-type machines. With the matter of equipment settled, the focus shifted to the design of the building. Hans Schmidt was chosen as the winner and his design was approved on 18 January 1912.

The first to be erected was the machinery hall, onto which a three-storey building was constructed. The basement housed 3 kV distribution equipment, and the first floor had rooms for foremen and a room for the city watchman guarding the plant. A workshop was on the second floor and a tool chamber on the third.

The construction of the power plant buildings was managed by the engineer P. Kurenius. For 6,000 roubles, AS Fr. KRull installed a gantry crane in the machinery hall. The task of building the brick chimney was assigned to the contractor J. Russwurm from St. Petersburg, and the work cost 8,957 roubles and 50 kopecks. The construction work progressed smoothly and the installation of boilers began in October. A fire had to be lit underneath the boilers on 8 December, as the office building needed steam for its heating system.

The assembly of the turbine set started at the end of November. The first turbine was promptly installed and brought into working order, but could not be commissioned, because faults were discovered in the design of the steam piping connecting the boiler and the turbine, and the piping had to be reconstructed. That took time and everything was ready only by the beginning of the following year. Although the commissioning trial of the plant was held in April, the first customer had been connected to the power network on 11 March (according to the old calendar) 1913. That day is considered to be the beginning of the Central Power Plant of the City of Tallinn.

Until the end of the Tsarist period, the power plant was managed by the Lighting and Water Supply Committee of the Tallinn City Council. The plant not only produced electricity, but also distributed and sold it and repaired electrical appliances.

“Theft of electric current. At 21 Vladimir Street, Johannes Siwo had connected one electrical lamp to a city cable via the window and thus used electricity without the knowledge of the power plant. The magistrate jailed Siwo for 20 days” Vaba Maa, 1919.

Although a need had arisen a lot earlier, work to increase the capacity of the power plant only started in independent Estonia in 1919. The then director, Aleksander Markson (who worked in that position until 1941), prepared an expansion plan, as resistors had even been installed in apartments to limit consumption. On the basis of a design by Georg Hellat, new and more powerful equipment produced at the Wumag factory in Germany on the order of Siemens-Schuckbert was installed. The equipment has been partly preserved. The power plant underwent construction, expansion and capacity-increasing work almost every year until the Soviet occupation.

The retreating Soviet Red Army blew the power plant up on Wednesday, 27 August 1941: only the switching house was left standing, and the machinery hall and the chimney were completely destroyed. The generators had been disassembled and taken to the port before the destruction of the plant. All of the other plants, up to Ellamaa, were also blown up.

Although the epic restoration of the power plant (1948) was characteristic of the Soviet style of construction, the architecture of the building can be considered...
rather integral and aesthetic. The new solution was
designed on the basis of Eugen Habermann’s earlier
drawings. Furnishings were altered considerably, the
machinery was improved and modern technology was
introduced. The State Regional Power Plant became the
combined thermal and power plant for Tallinn (connected
to the current Creative Hub). The turbine generators pro-
duced the last kilowatt hours in 1979, after which power
production was discontinued.

After a long period of darkness, the building has been
revived as the Energy Discovery Centre. The public idea
competition held for the renovation of the building in 2010
was won by Kaos Arhitektid (Margit Aule, Margit Argus,
Sander Aas and Pelle-Sten Viiburg), who were chosen to
prepare the restoration design of the building. The resto-
ration work was carried out by AS Restor.

The architectural body of the building was left
unchanged, but the monochrome approach that had sur-
vived from the 1920s was highlighted more in the interior
design. The dark equipment and the white reinforced con-
crete structures of the building create a pleasing contrast.
Uniting the different levels of the historical building into a
movement trajectory logical for a museum was the deter-
mining factor in winning the competition.

Design work was complicated by the fact that a large
part of the building is located below street level. The
main entrance was built one floor lower than street level,
which creates a clever effect, leaving the best pearls of the
museum for last. The building also contains brilliant small
solutions, such as the hidden ventilation. See if you can
find the supply and extraction!
In 1865, the Tallinn gas factory started work in the territory of the current 27 and 27a Põhja Boulevard. In 1912–1913, the Tallinn power plant was established in the same area. The power plant was expanded in 1936, but was partly destroyed in WWII. The brick chimney and the ramp along which trolleys took fuel to the boilers were built after the war.

In 2009, the Tallinn Culture Department held an architecture competition and the winner was the architecture office Kava-Kava, which prepared a restoration design for the entire building. The restoration work started in March 2011.

The restoration design for the Tallinn Creative Hub was based on the original design and finishing elements that had survived at that time, with improvements necessary for the new function and the new needs and contemporary building standards taken into account. Some furnishings had also survived and were given an entirely new task: representing the technology of the era, as well as modern design elements.

Unfortunately, quite a few grand ideas were not implemented due to financial reasons. I would like to mention three of those.

1) According to the design, there was supposed be a lift in the chimney, as well as a viewing platform at the top.

2) The ramp was intended as an evacuation route, but an expert evaluation determined that the box girders bearing the structure were made of poor-quality rimming steel, which is prohibited according to today’s building standards. The ramp was measured and the owner is obliged to reconstruct it using load-bearing structures of suitable material.

3) The external façade of the gas building was restored and a technical utility room was built on the basement floor, but the small hall and guest rooms planned for the above-ground part of the building were not built.

The condition of the reinforced concrete structures of the building was rather problematic, particularly with regard to the basement ceiling and boiler foundations. First, a loose layer of concrete was removed and then the reinforcing framework was conserved. The workers were initially unfamiliar with this job, which involved cleaning the uncovered reinforcing rods with small brushes and then covering them with a protection agent. They also applied the expensive protection agent to unnecessary surfaces and the supervision engineer had to patiently teach them the right working techniques. Other mistakes were also made in restoring the concrete and these had to be corrected. This is not a complaint about the builders, but a clear indication that specific and rare work requires special attention and training.

The original milieu of the boiler house is emphasised by all kinds of equipment inside: hoppers, electric trolley hoists and boilers. The boiler hall, with two huge conserved steam boilers, is the most impressive room. These were cleaned of asbestos inside and out, and all of the openings were hermetically sealed.

The most exciting part was the restoration of the chimney and the flues. The author of the project had the idea of displaying the flues as a flowing space of red bricks, just like the flues had once been constructed, as spacious channels covered with different arches, which now after restoration create a truly mystical world. The red-brick stairs designed for the flues also perfectly match the surrounding milieu. The flues were originally constructed so that there was an additional brick lining on the internal side of the load-bearing structure, protecting the walls from the effects of aggressive gases. The lining was attached to the main wall with steel anchors. Over time, many broken lining bricks and soot had gathered in the flues, with the ceilings of the flues on the verge of collapsing or already collapsed. After the first cleaning work, it was evident that the red brick flooring of the flues had mostly survived, but the majority of the inner lining was damaged and crumbling. The restoration of the flues started with restoring the collapsed ceilings: the new brick arch ceilings were hung on cast-concrete slabs with steel anchors. The new lining walls were anchored to the main walls using a method similar to that in the original walls. Not a lot of the original lining walls were preserved. After the brick walls were laid and cleaned, the original brick floor was uncovered and the empty spaces were filled with new bricks and old bricks left over from elsewhere.

The current work did not include the installation of a lift in the brick chimney, but the chimney structure was reinforced and the external surface restored. All of the cracks and joints were cleaned and filled with weatherproof injection mix. The outer surfaces of crumbled bricks were filled with a special tinted mix. The upper part of the chimney was restored through remote instruction, as the work was mostly performed by mountaineers who took pictures of the chimney at the top and then followed the
(1) Thermal power plant in 2006. Photo by Arne Maasik (2) Uncovered reinforcing framework at the bottom of a boiler during conservation work. Photo by Katrin Etverk (3) A view of the conserved boilers. Photos by Kaido Haagen (4) A passageway in the boiler hall.
instructions given to them on the basis of the photos. The top of the chimney was reinforced with a concrete belt and covered with a ventilated slab of veneer and roof sheet.

The area of the flues entering the chimney was one of the few places where entirely new openings were made. In the future, those doors will lead to the lift to the viewing platform. The façades of the two wings of the boiler building and the original gas building were finished with rusticated limestone and the plinth sections with regular ashlars. The condition of the plinths was very poor in places and the completely broken stones were replaced with new ones. The materials provided by Remmers were particularly suitable for fixing broken limestone. The most time-consuming part of restoring the boiler building façades was the restoration of the plaster dressing of the openings and the plastered lintels between the windows, where the extent of actual damages could only be determined in the course of the work. The reinforcing rods were deformed on several lintels and entirely missing on a few. New lintels had to be cast. The limestone walls were not completely cleaned and impregnated, but the surfaces that had once been painted green had to be cleaned. That was done using soda cleaning with a smooth transition to non-painted surfaces. The result looks respectable and not over-restored.

The volume of the restoration work carried out at the Tallinn Creative Hub was formidable and included a lot of relatively rare restoration of concrete and technical equipment. At times, the process was painstaking, but the problems have been overcome and the result is a very popular and multi-purpose historical complex.
In the second half of the 19th century, the leading products in the export markets of the Russian Empire were timber, alcoholic spirits and grain. All three are linked exclusively to one industrial quarter in Tallinn: the Rotermann factories district in the Old Town Harbour. The history of the quarter’s birth and development is almost as colourful as that of the Rotermann family, which deserves a brief introduction.

ARGUS AND REO
The family patriarch, Christian Rotermann, was a successful goldsmith in the town of Paide and went to live with his son in Tallinn in his old age. His son, Christian Abraham Rotermann (1801–1870) a hat maker, had relocated to Tallinn in 1828 and founded a merchant enterprise under the name Chr. Rotermann. The company mainly focussed on manufacturing and importing and exporting construction materials. Rotermann proved to be a very talented businessman, and thus a modest craftsman came to be one of the most prominent merchants and a major industrialist in Tallinn. In 1849, Christian Abraham Rotermann built a department store near Viru Square: one of the first stone buildings outside the Old Town. The building later housed the Tallinn Alexander Secondary School. This is the oldest remaining building in the quarter.

Christian Abraham’s son, Christian Barthold Rotermann (1840–1912), continued and expanded his father’s business. It was during his time that most of the existing Rotermann Quarter was built, including the tall grain elevator near Hobujaama Street, which has since become one of the most prominent landmarks and a major industrialist in Tallinn. In 1849, Christian Abraham Rotermann built a department store near Viru Square: one of the first stone buildings outside the Old Town. The building later housed the Tallinn Alexander Secondary School. This is the oldest remaining building in the quarter.

The ever-expanding grain processing and storage factory needed a facility for storing grain reserves, as the existing granaries had become outdated. Thus, the stone granaries were demolished before 1900, when construction began on the new, innovative grain elevator. The design project was signed on 30 March 1900 by the architect Konstantin Wilken. The elevator contained five grain bins, as well as the Rotermann salt storage (completed in 1908, currently housing the Museum of Estonian Architecture), a barley and sample mill and a cold store. He expanded the metal and timber industry, built a steam-powered sawmill in 1879 and founded a pasta factory in 1887. A year later, he built a new department store near Mere Avenue, followed by a flour mill that went on to become the largest in Tallinn. Interestingly, the grain that was milled into flour mainly originated from the Volga region and western Siberia.

The Rotermann factory territory was the first in Tallinn to be fitted with private telephone lines, in the 1880s. The lines connected the factory facilities with the harbour, ensuring close contact. C. B. Rotermann was also among the first people in early 20th century Tallinn to purchase a car, made by the German manufacturer Argus Motoren. His son, Christian Ernst August, owned a car made by the REO Motor Car Company, which was the first American car in Tallinn.

During Christian Barthold’s time, the Rotermann company was well-known in Russia and western Europe. He also served as a member of the Tallinn City Council and as an honorary consul in Belgium.

ROTERMANN ELEVATOR BUILDING:
THE UNSUNG HERO OF ESTONIAN INDUSTRY
Artur Ümar

The Rotermann elevator building is considered an unacknowledged symbol of the Estonian industrial landscape. The most important export harbour of imperial Russia revolved around grain. Before being shipped off abroad, the grain was processed in flour mills, and the most powerful mill was the “grand Rotermann mill”, consisting of a rye and wheat mill attached to the elevator building.

The factory also supplied the local market with bakery products, whose share was “rather minor”, according to the economic historian Maie Pihlamägi: a daily production of mere 10 tons. The necessary baking, storage and milling facilities (including a large grain elevator) were located in the same factory unit.

The ever-expanding grain processing and storage factory needed a facility for storing grain reserves, as the existing granaries had become outdated. Thus, the stone granaries were demolished before 1900, when construction began on the new, innovative grain elevator. The design project was signed on 30 March 1900 by the architect Konstantin Wilken. The elevator contained five grain bins, as well as a corridor and equipment room. The building had a slanted roof with a pitch of 35 degrees. The facades were designed in historicist style: the stairwell/equipment room featured pilaster strips for emphasis, while the gable was decorated with dentate motifs and a top tower. The second and third floor facade was an unplastered brick wall, while the first floor consisted of limestone. Most probably, the building had a wooden raft foundation, as in the rest of the Rotermann Quarter. In 1904, the engineer Kristof prepared a follow-up reconstruction project of considerably expanded volume. The main alteration consisted of adding three bins to the northern end, which were of equal height to the existing buildings. The engineer completed yet another project.
that same year, this time expanding the south side and adding larger grain hoppers.

The elevator near Hobujaama Street retained this appearance until 1930, when a comprehensive and expansive reconstruction plan (by Ernst Boustedt) was implemented. This resulted in the current floor-plan of the building. The only addition during the Soviet period was an equipment tower made of fibre cement (Eternit) installed in the middle of the building; this has now been replaced with glass.

**REBIRTH OF AN ESTONIAN INDUSTRIAL SYMBOL.**

The factory district was abandoned in the 1990s. The buildings were pillaged and some of them were damaged by fire, including the “inspection building” (destroyed by fire in 2001), located at the south end of the elevator. Then, the building stood roofless until renovations, and the technical condition of the quarter’s former dominant feature kept deteriorating.

Rotermann Quarter began to be developed into an attractive down-town environment only in the new millennium, when a series of architectural monuments were restored and new modern apartment buildings and commercial spaces were added to the mix. The elevator remained a constant topic of discussion, but a compromise was hard to reach.

The main problem hampering the building’s exploitation was its lack of windows, which did not make it possible to design residential or office spaces there. The heritage conservation department of the former Tallinn Cultural Department received an endless stream of projects suggesting various new functions for the granary: a market, a cinema, an art gallery, a casino, a shopping centre etc. These functions did not require natural light.

A plan was approved only years later, based on a design by KOKO Architects. We should also mention the importance of the clear guidelines for the special conditions of heritage conservation (by OÜ Eensalu & Pihel, 2007, 2014), which provided a solid basis for the design phase and the final result.

Once the special conditions and the design had been approved, demolition began. The demolition took three times as long as had been planned. The reason was very simple: the elevator’s concrete hoppers had been cast and reinforced with extreme diligence in the inter-war Republic of Estonia. As grain is known to expand due to humidity, metal straps were used to keep the building intact; its facades are covered with anchor plates for the straps.

The general idea governing the restoration of the monument was to preserve the walls in their original form, displaying the limestone facades to the maximum. The exterior appearance was to be dominated by the building’s robust shape, accentuated by historical equipment, original apertures, ladders and passageways, as well as round cast-iron anchor plates.

The reconstruction of the interior featured a particular focus on preserving the concrete hoppers of the bins, together with the limestone pillars separating them; moreover, all of the metal closing mechanisms on the bins, together with the numbers painted on the hoppers, were to be retained. The equipment tower at the north end of the elevator maintained a variety of original technical devices, such as transmission shafts. The building was to display authentic stone surfaces and the uniqueness and beauty of concrete structures.

A major change consisted of opening up the first-floor windows and doors on the side of the inner street, which had been walled in at various times. The only addition to the perimeter of the building took the form of an arcade placed in the middle of the building, creating a passage between the Rotermann Quarter and Hobujaama Street. The attic, which used to house technical shafts under gables cast of concrete, was also rendered usable.

New dormer windows looking over the inner street were added as a compromise. While some of the dormers were original, numerous copies were also installed. KOKO Architects designed a new tower in the central part of the grain elevator, as a reference to the equipment room built of fibre cement in the Soviet era. The new glass tower houses undoubtedly one of the most exclusive offices in Tallinn, offering a view of the Old Town over Rotermann.

**A MONUMENT TO STALKER**

The strange atmosphere in the quarter captured the attention of artists in the 1970s; the site’s fame originates in part from having served as a location for Andrei Tarkovsky’s world-renowned film *Stalker*. In late 2010, the light art initiative NPO Valgusfestival commissioned from KAOS Architects a design for a monument to the film, with the artist Raoul Kurvitz as a co-author of the monument.

The design envisioned a scene from the film in its original location in the Rotermann elevator building and in the narrow inner street. The monument was to be built in the context of contemporary art and centred on a peculiar object – a World War II Jeep – inspired by the novel *Roadside Picnic*, on which Tarkovsky’s film was based.

It is a pity that the project has not yet materialised. It would definitely become a cult destination, promoting both the film and historical industrial architecture.

**A ZEN EPILOGUE**

It bears mentioning that without the building’s owner, Urmas Sõõrumaa, who is known to be very “Zen”, we would not have the restored end product. The owner’s Buddhist slant has added a positive twist to the building. Strolling along the corridors up and down the building, the gaze is caught by the floors finished with epoxy resins, which feature large numbers.

Once, after yet another construction meeting, I asked Deivy Paavo, who acted as the supervisor appointed by the owner and has been involved in building
Clearly a very unique industrial building, the grain elevator is a favourite model among architecture photographers. View from the north-east. Photos by Tõnu Tunnel (2) The building, some 140 m long, consists of an equipment tower dating back to the pre-war Republic of Estonia, a rye and wheat mill built in different periods, a grain elevator and an inspection building. View from the north-east (3) The building facades are covered with anchor plates for metal straps that were used to neutralise the effects of the grain expanding. View from the north-east
New dormer windows were added to the inner street side as a compromise. View from the south-west (5) An elaborately lit courtyard facade featuring preserved historical machinery, original apertures, ladders and passageways, and round cast-iron anchor plates (6) The fibre cement equipment tower added in the Soviet period has been replaced with a glass structure. View from the south-east (7) The dimensions of the building can be experienced in the stairwells, which reach up through six floors. The modern stairwells were fitted into the old grain bins
The apparently endless room restored on the first floor using the mirror illusion is dominated by limestone pillars and concrete grain hoppers. The interior retained the original hatches of concrete hoppers and the numbers painted on the hoppers. The attic floor, which formerly housed technical shafts. Hopper numbers have been retained here as well. A shot from Andrei Tarkovsky’s film *Stalker* (1979), filmed next to the elevator building. A monument to the film *Stalker*. Draft design by KAOS Arhitektid OÜ.

The Rotermann Quarter since 2006: “Why is it that office number 12 is immediately followed by office number 14?” Indeed, there is not one room with the number 13 in the whole building! Deivy replied with a single word: “Zen.”

There are other similar examples, but not everything can be discussed in public. Hopefully, the owner will continue applying the major Buddhist principle of steadfastness and self-improvement, with a particular focus on heritage conservation.

In 2016, the National Heritage Board gave the Rotermann elevator building an award of excellence in heritage conservation, and the Tallinn Urban Planning Department awarded the building its grand prix. Now that’s Zen!
The preservation of buildings requires will-power and that the owner find a function to fit his/her needs and the building’s characteristics. A windmill is such a special structure that it cannot accommodate an ordinary, dwelling-type spatial plan. The main problems one faces when looking for new uses for windmills include confined space, poor lighting conditions, and poor imagination on the owner’s part. A complete windmill houses a lot of valuable mechanisms, which is why free floor space is in short supply. Stairs are steep and dangerous, while small and sporadically placed windows are usually less than watertight. The boarding of a tall convergent wooden structure and the cap of the mill are more burdensome to maintain than, for example, a storehouse sporting a gable roof. The advantage of the windmill lies in the building’s special character, which allows the owner to enjoy its peculiar values and its commanding view of the surroundings.

Of the 50 wooden smock windmills that have survived in Estonia, only 18 have found uses. Most of them (11) are used as simple storage spaces, five serve as museums or museum exhibits, one as a restaurant, and one as a dwelling. The windmills that are used have not been allowed to fall into disrepair. Any type of practical use helps to ensure the preservation of windmills. The best options for preservation are of course conservation solutions; however, depending on the number and condition of the original details, other approaches that honour the heritage of windmills and help preserve what is valuable are possible. The following is a selection of potential functions for windmills, starting with the most preferable.

EXHIBIT AND MUSEUM PIECE
Windmills used as exhibits (the Kalma windmill at the Estonian Open Air Museum, the Vana-Prangli windmill as part of the Põlva Peasantry Museum’s collection, the Möldre windmill in the village of Audevälja in Harju County as an exhibit of the NGO Audevälja Development Centre, the Tedre windmill of the Kaali Visitors’ Centre, and the Nehatu village windmill in Lääne County (private owner) are in good technical condition, with their purpose serving as the best guarantee of the preservation of the original details. A museum is the best solution from the heritage conservation point of view. Almost all surviving examples, even in windmills in which the interiors have perished, can be used as museum pieces. This makes it possible to display fittings that have no hope of survival in their original locations. Windmills with existing fittings should definitely be considered for use as museums. A perfect set exists in the Koni, Tamme, Terikeste, and Petersoni windmills in Tartu County, the Kuie windmill in Lääne-Viru County, the Silgo windmill in Põlva County, the Äritse windmill in Jõgeva County, and the Eerikuasaare and Vessiku windmills in Saaremaa.

WINDMILL
While an old windmill’s original function is obviously the best fit for it, old mechanisms might not be in sufficiently good condition for old-fashioned flour-making. The gears and wallowers tend to break, and surfaces and nodes exposed to friction wear out, which calls for frequent replacement in old windmills. Worn details should be replaced with copies, with the originals put on display either inside the windmill or in a museum. The requirements for reconditioned windmills are listed in heritage conservation special conditions regarding monuments.

STORAGE
Several windmills used as storage spaces have been spared from collapsing or have at least had their lives extended. Because it is necessary to store useful items somewhere, people have found it easier to fix an old windmill’s roof than to build a new structure. It is very sensible to use a (half-)empty building as a storage space, manoeuvring area, shed, stockpile or barn. A windmill is a surprisingly accommodating structure when one uses all storeys. It should be kept in mind that items can be lifted to the second and third floors with the help of the bag hoist.

OBSERVATION TOWER
Birdwatching is gaining in popularity as a tourism activity, and at least one post mill in Saaremaa (the Jaagu farm windmill in Ennu village) has been given such a function. To successfully serve this end, a windmill will definitely need additional windows. When designing the latter, special attention needs to be paid to joints between the window and the outside planking or shingles, as most windows in cone-shaped bodies are not watertight.
(1) The Vana-Prangli windmill is an exhibit of the Põlva Peasantry Museum. Photo by Dan Lukas (2) The post mill of Ennu village’s Jaagu farm is used as a birdwatching tower. Photo by Mihkel Koppel (3) The Karula windmill in Viljandi County has been turned into a practice wall for rock climbers. Photo by Jaan Künnap (4) “The Travelling Windmill” (in Laiuse in the 1850s, in Sassukvere from 1880, and in Tallinn from 2003) now houses the Veski tavern. Photo by Martin Siplane
INDUSTRIAL HERITAGE

HUNTING CABIN
More than one smock windmill is located where it could easily be used for hunting. The principal modifications resemble those of the birdwatching tower. This use could fit the Tohosaare windmill in Viljandi County, which is located several kilometres away from the nearest settlement on the edge of a forest pasture.

GALLERY
A windmill can hold quite a lot worth putting on display. It is also relatively easy to adjust lighting conditions.

CLIMBING OR EXERCISE WALL OR EXTREME ATTRACTION
The Karula windmill in Viljandi County has been turned into a rock climbers’ practice wall, successfully demonstrating another way to make use of idle windmills. The use of windmills as elements of adventure parks and extreme sport venues could offer a good way to preserve cultural values through tourism and enterprise.

WORKSHOP
Outfitting a windmill to serve as a workshop allows for a number of activities, most of which only require a work surface, shelves and some equipment.

SUMMER HOUSE
A windmill could be a serious option for a summer home, and one that has potential in the tourism sector. Hikers are definitely one target group that would gladly settle for the modest accommodation a windmill offers. It is also not too difficult to imagine a more luxurious summer house, the ground floor of which would hold a bathroom and kitchenette, with the top stories serving as various rooms. That would be a good way of making use of windmills that are not monuments and lack all or most of their stock.

CAFE
Cafes can be created almost anywhere. A windmill cafe has a number of advantages as a landmark. A smock windmill brought to Tallinn’s Laki Street from Jõgeva County serves as a year-round dining hall. This solution requires a kitchen and auxiliary rooms to be housed in an adjacent building, as well as adding larger windows for light; however, it is possible to accomplish all of this tastefully.

SHOP
A windmill would make an attractive sales area to be used to trade in farm goods that do not require a fixed storage temperature. Potential shops can be found at the Immo, Mardi, Kalme, Undioru and Venevere windmills.

GARAGE
Empty windmills are often located on private property, which makes it difficult to give them a public function. Owners could, however, be encouraged to try to find new and unexpected uses for windmills. Garages could be made out of windmills that have no stock and are in poor technical condition. A passenger car can easily be parked inside a windmill, and this would require only a suitable solution for the door and pavement of the ground floor. It would be possible to use the Malmi, Peebu, Nădure, Sikkasaariku and Hertsogi windmills this way.

RESIDENCE
The Kuke village windmill in Lääne County is used as a residence. This required the addition of thermal insulation. Whether to install insulation inside the windmill or outside should be decided in consultation with a professional architect. Use of windmills that are listed as monuments as residences is unlikely.

OFFICE
An office built inside a windmill would clearly be special and inspiring. It would afford a talented architect the chance to test his/her skills in giving an old windmill a new meaning and a chance at preservation.

SAUNA
A windmill’s ground floor could accommodate a sauna. This would require thermal insulation, fireproofing, installation of a water and electrical system and, depending on the heating method, a chimney. It would definitely constitute an original solution to help preserve a windmill. Because Estonians love special solutions, building a sauna in a windmill would qualify as a task promising both joy and pride.

It needs to be said in terms of all the uses listed here that every solution depends on a specific windmill’s preserved values. The most innovative and bold ideas are suitable for windmills whose stock and fittings have all or mostly been lost. The main thing to consider when conserving a windmill is for the new function to value and add dignity to the old. A good solution can be found by consulting conservators and architects. Naturally there are other ways in which to use wooden windmills than the ones listed here.
In recent years Estonian heritage conservation and environmental protection experts, and sometimes even the general public, have become excited about the demolition of river dams. However, any measures to protect fish and environmental measures are also linked with aspects of cultural heritage, which have mostly been ignored in current discussions.

**PROLOGUE**

In 2004 the Republic of Estonia became a member of the European Union (EU), and started eagerly implementing an EU law, *inter alia*, the EU Water Framework Directive of 2000, the objective of which was to ensure the good condition of water bodies by 2015. Among other objectives, it was intended to improve the natural condition of watercourses, most visibly manifested in an increase in fish populations in rivers, welcomed by the fishing community. Naturally, this required removal of many dams and the draining of reservoirs, and there were EU funds available for this purpose.

Also in 2004, Villu Reiljan, one of the most colourful politicians in Estonia, who had gained notoriety as a person behind the “land-swap deals”, signed a regulation which listed 112 rivers and streams populated by *Salmonidae*. The Nature Conservation Act prohibits building new dams on these rivers and streams or reconstructing existing ones that would cause a rise in their water level; it is also prohibited to change the hydrology of these water bodies. Fishery specialists are convinced that such restrictions are necessary and ardent fishing enthusiasts dream of fish jumping in rivers.

However, the regulation does not address the fact that on most of these rivers there is one or — in most cases — there are several mill dams, as well as a number of idle or functioning hydro-power plants and dams servicing industrial facilities. As for the above-mentioned restrictions, even a lay person understands that dams prevent the natural migration of fish in rivers, in the same way that multi-lane highways prevent the unrestricted migration of wild animals. Yet one should not ignore the fact that the meaning of weirs and dams in the Estonian cultural landscape is much wider than aspects of fish migration. Dams have been built on Estonian rivers since the Middle Ages, and the structures and buildings connected with them are part of the cultural heritage; in certain areas, changes in water levels caused by damming have shaped landscapes and their use by communities for centuries. In many cases, efforts aimed at improving the situation of fish resources, expected to be achieved by removing a dam, would bring about significant sacrifices in terms of cultural heritage.

**DRAWING UP INVENTORIES OF WEIRS AND DAMS**

The document “Identification and Final Designation of Heavily Modified and Artificial Water Bodies”, commissioned by the Ministry of the Environment, was completed in 2008; this document reveals that in the river basins of western Estonia and of Gauja, there are 140 and 10 heavily modified bodies of water, respectively (including the Narva Reservoir), of which 11 rivers have been heavily modified by damming. Furthermore, 18 of these weirs and dams were identified on rivers where the attainment of good ecological status would require ending the current use patterns: generation of hydro power, fish farming and industrial water intake.

This analysis was followed in 2010–2013 by an extensive inventory of dams on Estonian rivers and streams, carried out within the project of the Environmental Agency’s “Inventory of barring structures built on watercourses for the purpose of improving migration conditions for fish”. The work was carried out in two stages. Around 1000 weirs, dams and culverts were described and photographed. Unfortunately, no experts in the field of heritage conservation were included in the project, and therefore this massive database lacks information on cultural history aspects of dams, their infrastructure and related buildings. Nevertheless, this survey represents the most comprehensive inventory of Estonian dams to date, forming a robust basis for further studies by researchers of cultural and technical history.

Even though the gathering of cultural history data is not an objective of nature conservationists, it would be reasonable to combine efforts of all interested parties, i.e. nature and heritage conservationists, to carry out such mapping projects in future, considering the limited human and financial resources in Estonia. This would allow for the collecting of necessary information much more efficiently, especially considering that such cooperation has been taking place for years in studies related to parks and ancient holy sites. Moreover, it would offer an opportunity to plan any subsequent activities so that the effects on...
The dam of the Leevaku HPP in Põlva County is of great significance in terms of the landscape and cultural history. Photo by Leele Välja

The hydro-power plant of the Kunda cement factory, built in 1893, and the dam completed at the same time are prominent cultural history monuments for a number of reasons: the hydro-power plant was the first to be built in the Baltics, it was the first industrial power plant in Estonia, and it was the first reinforced concrete building in the region of such magnitude. Photos by Henry Kuningas

The hydro-power plant of the Sindi broadcloth factory, built in 1931, stands next to the Sindi dam; the draft of the project “Mapping and Analysis of Estonian 20th Century Valuable Architecture” recommends that this dam be listed as an architectural monument.

The Sindi dam, which has given rise to many disputes, was built in 1977, and as such does not have any value in terms of the history of architecture or technology, but the local government is opposed to its demolition. Photo by Leele Välja

The dam of the Tudulinna HPP, built in 1947, is not under threat of demolition. Photo by Leele Välja
cultural heritage of any restrictions would be taken into account from the very outset.

That kind of cooperation could also be applied to research dealing with industrial heritage and Soviet military heritage, and to planning further activities. In addition to considerable savings in time and money, such joint efforts could broaden the horizons of specialists who are now focussed only on certain specific areas.

PAINFUL SOLUTIONS

In 2012, after having conducted the studies and gaining a bit of momentum, the Environmental Board decided to grab the bull by the horns. Among other activities, the Board approached the National Heritage Board presenting a list of dams to be demolished or partly reconstructed. This was followed by a string of meetings and correspondence with a view to feeling out each other’s positions, one of the recurring topics being exclusion of protected dams in poor condition from the list of monuments, and financing the restoration of dams protected under heritage conservation.

The positions of the National Heritage Board regarding 16 protected dams were formed finally by the spring of 2014, when it was stated that these dams needed to be preserved and reconditioned. The possibility of building various fish passes was discussed as a compromise solution.

Cultural heritage conservationists or local residents have not objected to the removal of many less significant dams. For instance, the Parivere dam on the river Are, which was built during the Soviet period and no longer served any purpose, was demolished in 2014.

However, the possible destruction of dams has led to serious disputes. A powerful objection against the removal of individual dams has been expressed either by individuals directly interested in dams — watermill owners and small producers of hydro power — local communities, who perceive a dam and the artificial lake created by it as a part of the local identity, or the National Heritage Board. In addition, many of the small lakes created by damming are popular swimming sites. The dreary perspective of getting a semi-swampy area after a reservoir has been drained has caused strong objections among local residents. Several cases, e.g. the plan to remove the dam of the Saesaare hydro-power plant, have been frequently covered by the local press, often causing an unfortunate split within a community. In 2016 the Environmental Board approved the environmental impact assessment statement related to the removal of the dam of the Saesaare hydro-power plant, which foresees the demolition of the dam as an inevitable step. Moreover, the permit of the hydro-power plant for the special use of water will expire in 2017, and this is likely to be followed by the removal of the dam.

The most high-profile cases are the plans for removal of the Sindi, Kunda and Linnamäe dams, which have been covered by the national media.

Next to the Sindi dam stands the hydro-power plant of the Sindi broadcloth factory, and the expert opinion (2010) prepared within the project “Mapping and Analysis of Estonian 20th Century Valuable Architecture” recommends that the hydro-power plant, completed in 1931, be protected as an architectural monument. The controversial Sindi dam was built only in 1977, and as such has no historical value in terms of architecture or technology. In spite of this, the city government did not give their consent for the removal of the dam because of objections of local residents. Nevertheless, in 2016 the city finally caved under strong pressure, and gave their consent to the demolition of the dam, provided that a new outdoor swimming pool was built on the river. As no agreement has been reached regarding the pool, in 2017 the Sindi dam still stands stubbornly in place.

The situation with the unique dam of the Kunda hydro-power plant — which the Environmental Board also has designs on — is completely different. The hydro-power plant of the Kunda cement factory, built in 1893, and the dam completed at the same time are prominent cultural history monuments for a number of reasons: the hydro-power plant was the first to be built in the Baltics, it was the first industrial power plant in Estonia, and it was the first reinforced concrete building in the region of such magnitude. It is unnecessary to add that preservation of this complex under state protection is of utmost importance in terms of cultural heritage preservation.

From the point of view of the heritage conservation authorities, the owner and the local government, the most reasonable solution would be continued production of hydro power in this power plant, which is still in good shape structurally and technically, but since 2007 generation of hydro power in this historic plant has been suspended as the permit for the special use of water has expired. In
2011 the Environmental Board commissioned an environmental impact assessment (EIA), only to end it abruptly in 2015, while refusing to grant the permit for the special use of water. At the same time, the owners of the dams situated on the river have contested in court the management plan of the Kunda River, which *inter alia* rules out generation of hydro power.

Building a fish lift approved by the National Heritage Board as a forced compromise would inevitably distort the appearance of the valuable complex. This would be both expensive and bound to fail from the start, especially because a couple of kilometres upstream there are three more dams thwarting fish migration. In view of its remote location, it is rather unlikely that the Kunda hydro-power plant complex will be given a new function. There is a real risk that the owner is not interested in maintaining and restoring this idle complex with no viable prospects (which in addition to the power plant building itself also includes a dam and a relief channel). Due to indecisiveness and years of wrangling between the parties, this has become yet another site of cultural heritage with no clear purpose, and it is therefore falling into disrepair.

The Environmental Board has also set their sights on the dam of the largest hydro-power plant in Estonia: the Linnamäe hydro-power plant, situated on the river Jägala. The building of the Linnamäe hydro-power plant, with its impressive dam dating back to 1924, according to a design by Axel Juselius, was considered one of the most prominent industrial achievements in Estonia. The hydro-power plant that was blown up in 1941 stood in romantic ruins until 2001, when Eesti Energia restored the dam based on a design by Raine Karp. The intentions of the Environmental Board, repeatedly expressed in recent years, have been met with objections by the National Heritage Board, the electricity producer, the local community and the Jõelähtme rural municipality. Even disregarding its socioeconomic and cultural history aspects, this intention seems bizarre, because just a couple of kilometres upstream from the dam is the Jägala waterfall, which is impassable for migrating fish. Seeing that the demolition of the dam, an outstanding work of engineering, had regrettably become more and more likely, the Minister of Culture designated the structure a national monument in 2016. Nonetheless, such state protection does not ensure the generation of hydro power or the preservation of the artificial lake, which are sought by both the electricity producer and the local community. Until this is possible, electricity will still be generated at Linnamäe.

### IN CONCLUSION

Referring to the case of the protected Hellenurme watermill complex, where the protected dam was to have been destroyed in order to comply with the provisions of the Water Act, and thanks to the support of the Chancellor of Justice, heritage conservators managed to cause the 2016 Water Act to be amended, adding a provision which alleviated the hitherto absolute obligation to ensure that on salmon rivers passage of fish is ensured both upstream and downstream, and offering the possibility of getting an exemption from this obligation. The discretionary authority arising from the Act is granted to the Environmental Authority.

One can find other examples of the intention to remove dams in Estonia. Besides aspects of nature conservation, in cases involving dams — whether mill dams or dams built more recently for industrial purposes — it is always appropriate to consider their cultural value.

Fish farms, watermills and weirs have been built on the rivers of Estonia since the Middle Ages, with the construction of hydro-power plants starting in the 19th century. I believe that the majority of the citizens have accepted that there will be no new dams built on rivers, because it is obvious that the potential of Estonian rivers for generating hydro power is low. On the other hand, preserving certain dams is very important, whether from the point of view of cultural heritage, local identity or economic sustainability. Hopefully a good ecological standing of rivers can be achieved even when Estonian cultural heritage is preserved.

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2. List of spawning areas or habitats of salmon, brown trout, salmon trout or grayling.
3. There are a number of governmental and non-governmental organisations in Estonia dealing with the restoration of the good ecological status of Estonian watercourses. The organisations working within the area of government of the Ministry of the Environment include the Environmental Board, the Environmental Inspectorate and the Environment Agency; there are also the state foundation Environmental Investments Centre (EIC), and the for-profit state agency the State Forest Management Centre (RMK).
5. The rivers Kunda, Võhandu, Pedja, Elva, Alja, Leevi, Rannapungerja, Sõõre and Purise, and the Mustoja and Narva Reservoirs.
6. On the river Kunda: the dam of the Kunda hydropower plant (HPP), the water intake dam of AS Estonian Cell, the dam of the Kunda cement factory and the weir of the Avaride (Rahula) fish farm; on the river Võhandu: the Räpina and Leevaku dams; on the river Pedja: the dams of the Harjanurme, Painiku and Jõgeva mill ponds; on the river Elva: the Kera (Täкрепere) dam; on the river Alja: the Saasaare dam; on the river Leevi: the Leevi and Pola weirs; on the river Rannapungerja: the Tudulinnama dam; on the river Sõõre: the Sillamäe (lower) dam; on the river Purise: the weirs of Viru HPP and Purts; on the river Mustoja: the Vihula III (upper) weir.
7. In Tartu county: the dam of the watermill of the Snaare-Kambja manor, the Paaslangi watermill and the dam; in Viljandi county: the ruins of the Tarastu watermill; in the city of Viljandi: the weirs of the Uueveski watermill and the Kusti weir; in Järva county: the ruins of the Jänja watermill and the dam of the Jänja pulp factory; in Rapla county: the dams of the watermills of the Kahala manor and the Purila manor; in Lääne county: the weir of the Kullamaa watermill; in Lääne-Viru county: the dams of the watermills of the Vihula and Pada manors, and the dam of the HPP of the Kunda cement factory; in Valga county: the weir of the watermill of the Hellenurme manor; in Põlva county: the weirs of the Rannama watermill and the watermill of the Riipina manor; and in Jõgeva county: the dam of the watermill of the Jõgeva manor.
8. The first dam of the Sindi broadcloth factory was built on the river as early as 1834.
9. Some of the scenes of Andrei Tarkovski’s film “Stalker” (1979) were filmed there.
The Soviet period was a generous time for the development of monumental art in Estonia — large scale artworks in various techniques (fresco, mosaic, sgraffito) were commissioned for many public buildings. After Estonia gained independence, many of these buildings and the artworks within them were either privatised, demolished or left to decay. The situation raised a question: could the artworks be preserved separate from their architectural embodiment?

Three such cases, where demounting of the artwork was the only option for saving the murals from the Soviet period will be discussed: in 2010, from the building of Estonian Academy of Arts; from the restaurant Tarvas in Tartu and from the Viljandi Vocational Training Centre before the demolition of the buildings in 2014 and 2015 respectively. The problems conservators and engineers faced in the process of demounting, remounting and dealing with the municipalities, as well as considerations how the guiding principles of conservation ethics can be followed in such cases were issues in all three cases.

Elmar Kits (1913–1972), whose works are among the most noteworthy examples of Estonian monumental art, is undeniably one of the most distinguished artists of Soviet Estonia. His sgraffito style mural painting located in Tartu’s old department store was completed in 1965 and originally adorned the wall of the Tarvas restaurant. This mural painting is one of the most remarkable examples both in Kits’s own body of creative work as well as in the history of Estonian monumental art, and in a certain sense, it is also one of the works symbolising the artistic scene of that time.

The other mural by Kits discussed here was executed in the beginning of the 1970s for a trade school near Viljandi. The painting depicts three young maidens and, like the Tartu mural, the composition is again somewhat abstract: the figures are clearly distinctive but the painting as a whole is lustily stylised.

**COOPERATION ENSURES THE PRESERVATION OF ARTISTIC VALUE**

The nearly 20 m² mural painting in Tartu survived the political changes, as well as the demise of the restaurant, and its death knell did not start to sound until the decision was made to demolish the building. Five years ago, discussions began concerning the Tartu Consumers’ Cooperative plan to build a modern business centre on the site of the old department store. By that time, all that remained of the one-time renowned restaurant’s authentic interior was Kits’s mural painting.

In terms of construction technology, it proved to be impossible to preserve the wall or room bearing the painting in the course of the building’s demolition, or such preservation would have become prohibitively costly.

The Viljandi Vocational Training Centre faced a similar situation in the spring of 2015. The trade school was located in a 19th century manor house, but it was decided to give the building back its original appearance and dismantle the extension that was built in the Soviet period. Now a decision had to be made on what to do with the mural painting located in the building.

The preservation of the authentic architectural framework is unquestionably the safest and most ethical way to preserve a work of art, but sometimes, this proves to be impossible. The choices are the destruction of the work of art together with the environment and context that surrounds it, or saving it by demounting it and transferring it to a new support. In the event that this proves to be the only possibility for preserving the work, moving the work is justified, even though such cases do not always come without further questions — what is the value of a work of art, if the authentic context surrounding it is destroyed?

A similar precedent was set in the course of the demolition of the Estonian Academy of Arts building in 2010, when the school’s cultural heritage and conservation department successfully demounted the more valuable part of the mural paintings located in the building. Already from the beginning of the history of the building in the 1960’s, the walls of the school had been used as training space for mural paintings. Many of those were made by artists who have by now taken up dignified places in the history of Estonian art and some of these works have become symbols of the Academy of Arts for several generations.

Since demounting of murals, a complicated and aggressive way of preservation had not been practiced before in Estonia, the walls of the Academy provided an excellent training ground for students of conservation. The work took place while the demolition of the building was already in progress. Some ten of the most valuable mural paintings were successfully removed from the walls over the course of a couple of days. In a way, this salvage operation created a more positive image for the much discussed (and criticised) demolition work of the Academy of Arts. On the other hand, this was an excellent chance to play
Mural painting by Elmar Kits in the old department store’s restaurant Tarvas in Tartu in the 1970s. Photo by Kaljo Raud, Estonian National Museum.


Demounting process.

out the process of this technically pretentious method of preservation. Two layers of fabric were affixed to the paintings with strong adhesive made from animal products. After the adhesive had dried, the frescoes were removed in strips from the walls together with the support plaster and deposited in the repository.

**BACK TO TARTU**

At the end of May, 2013, the Tartu Municipal Government issued a permit for demolishing the buildings situated on the properties of the old department store under the condition that the 9 m long and slightly more than 2.6 m tall mural painting be first transferred and preserved. But how? The first plan worked out by engineers entailed cutting out the entire mural painting, its transportation and preservation as a complete monolith together with the silica brick wall supporting it. This was nevertheless considered technically too difficult to implement. The nearly ten metre wall alone would have weighed nearly 40 tonnes. A second plan worked out by conservators in cooperation with engineers relied purely on tradition and was based on methodology for transferring mural paintings that had been previously tried and proven, based on using adhesives of different solubility. In order to prevent damage to the surface layer of the painting, the plan was to demount the mural painting in sections. It took about three months to proceed from the concept to the beginning of work, during which time, the technique for removing the painting was fine-tuned. The possibility for error was out of the question.

The mural executed by Kits is a painting in relief and can be referred to as sgraffito only due to its external similarity to classical sgraffito. Sgraffito is traditionally done on lime-based plasters, where the binder of the various coloured layers is calcium carbonate that is produced when wet lime comes into contact with carbon dioxide in the air (technically similar to the fresco technique). Even though the composition of the plaster and the binder of the pigments in Kits’s mural have not been determined, it can be presumed on the basis of the observation that the relief was cut into the plaster containing cement and that different surfaces were coloured on plaster that was already dry. The binder of the paints appeared to originate from an unusual arsenal of the artist — it is a relatively strong paint surface resembling plastic that alludes to some sort of acrylate medium used in construction paints. The deep relief of the three-dimensional surface of Kits’s mural painting made its removal considerably more complicated.

The mechanical removal of panels of the painting from the wall could have been potentially very dangerous for the paintings’ surface. Thus, the mural painting was pre-emptively covered by layers of protective fabric to prevent the cracking and crumbling of the plaster and damage to the pigment layer in the process of demounting.

Tentative experiments with different glues and solvents were carried out on the lower accessible area of the painting and it was decided to use natural glue of animal origin (rabbit skin), which has been the traditional medium for applying protective layers. Two layers, first gauze and then a stronger cotton fabric were used.

**DEMOUNTING OF THE MURAL PAINTING**

In order to demount the mural painting, the surrounding plaster and suspended ceiling panels were removed first to afford unrestricted access to the work. The scenes of the work were separated from one another using a circular cutter and the demounting began. A separate protective frame made of iron rods was constructed for each section. After the fixation of the frame, the panel with its protective layers of fabric was covered with an additional plastic film. A protective surface made of strong plywood was attached to the front side of the painting and the frame was hung on a hook that had been fixed to the ceiling. The gaps that ensued in the deep grooves of the relief between the plywood and the plastic film were in turn stiffened using stiffening foam, in order to prevent cracking in unsupported parts of the painting. After it dried, the plaster was sawed through using a cable cutting system as close as possible to the brick wall. Thereafter, the panels were lowered into a horizontal position and their back sides were covered with reinforcing netting and a mixture of adhesive and reinforcement, and after this dried, it was covered with an additional layer of plywood to complete its affixing.

As a compromise decision, the owners of the building did not wish to find a new place for displaying this work of art in the new building. Instead, they ceremonially donated it to the Estonian National Museum repository at Raadi, in other words, to the Estonian state.

Although the building was demolished, the art work was successfully brought out of the debris. Well thought out methodology and close cooperation between conservators and engineers ensured the success of this experimental and risky work that was undertaken. The trust of the customer is also of no less importance.

This is all nevertheless only the first stage in preserving the work of art. There is still no physical environment where the works could be remounted in the case of either the Estonian Academy of Arts or Tartu’s old department store. In technical terms, the success of these works can be spoken of only when the second stage is also seen through to completion, in other words, when the works are once again attached to the wall and displayed in their new environment.

**ONWARD TO STAGE TWO: REMOUNTING PROCESS**

It is, however, possible to speak of a “stage two” in the case of the mural painting by Kits in the Viljandi vocational school. The mural offered a comparable challenge to conservators and engineers due to its similar relief-like surface. Since the demounting of the Tarvas restaurant painting had proceeded without incident, it was decided to follow the same path. The only difference was that this
(4) Application of prophylactic adhesive fabric to the mural in the Viljandi Vocational Training Centre. Photo by Helen Volber

(5) Demounting of the panel. Photo by Haspo OÜ

(6) Removal of the protective fabric. Photo by Taavi Tiidor
time the process of saving the mural didn’t stop here.

To replace the classroom space lost by demolishing the Soviet era building, the school had renovated an old stable and converted it into a new annex. The plan was to transfer all the artwork that once embellished the old school rooms to the new building. Luckily there was only one object of art in the old building that was literally part of the architecture.

The already familiar technique for demounting the painting from the wall was used again. Here the detaching process was expected to be easier due to the much smaller size of the artwork — the mural only covered an area of about 3 by 2 meters. A bit worrisome was its more fragile paint surface, and the plaster itself, which appeared not to contain much binder and seemed more brittle compared to the painting in Tartu.

An important facet of the conservation concept was also to retain the movability that the artwork had now gained during the detachment so it could easily be transferred to another location on whatever occasion that may once again prove to be necessary. Hence, the first step of the remounting process was preparing a supportive double baseplate for the painting to serve as an intermediate layer between the mural and the wall. To ensure reliable adhesion between the mural and the plywood baseplate, the latter was coated first with contact primer and then covered with a layer of tile adhesive. The mural, covered in turn with adherence dispersion from the rear, was then placed on the baseplate.

When the tile adhesive was set, the protective plywood panels, attached temporarily to the front side of the painting, were removed, as was the assembly foam used to stabilise the grooves of the relief. The baseplate carrying the artwork was fixed to the wall.

Now it was time for the dreaded “moment of truth” — removing the protective fabrics exposed the actual success rate of the whole undertaking. It was decided to use hot steam instead of water for reactivating the rabbit-skin glue to avoid the excessive use and absorption of water. The conservators could breathe a sigh of relief as the layers of fabric and gauze started to peel off the mural easily and revealed the painted surface almost intact. Only a small area in the lower right corner of the painting was somewhat damaged during remounting and needed some consolidation and a little plaster repair.

Slightly more time-consuming was the removal of glue residues from the painted surface.

**SUMMARY**

Fortunately we can now say that the experimental method outlined above has proven to be successful for saving murals with relief-like surface. At least one demounted mural is once again displayed in all its glory on a new wall. Though wall paintings are considered site specific artworks, there are circumstances where removal of murals from their intended location is justified.

The situation turned out to be particularly pleasant for the painting with three maidens. The mural actually remained in the institution it was meant for, just on a different wall. It is also worth mentioning that the school’s personnel described the original location as being rather unfortunate. They were pleased to see the painting now in a more spacious and better lit environment.

The question remains open whether and where the other detached artworks described in this article will find their place. Can these works of art be made to tell stories of the more major historical epochs, and if so, then how? One possibility is to simply mount the works on a portable base and to display them in a museum environment, as has been done for centuries in history. Another possibility is to leave the mural paintings stored and covered by protective layers for future generations, who can decide if this section of Estonian history merits being put on display. A third possibility is, hopefully, that a worthy architectural environment is found for these works in two environments that are also being reborn — in the Estonian National Museum at Raadi in Tartu and the new Estonian Academy of Arts building in Tallinn. The museum moved into new premises in 2016 and the academy will be moving into a new building from its historical locations in 2018, and mural paintings that are historical, yet nevertheless relate to their new architectural embodiments, would create that tiny bit of visually perceptible connection in both cases with the immediate past that has to be appreciated equally with others.
Johann Köler’s apse painting in the Kaarli Church is a chrestomathic work of art for Estonians. Its symbolic status is based not only on the artistic quality of the work, but also on its historical, national, site-specific and contextual identity. Therefore the image has become embedded in every Estonian’s memory. In 2013, a technical examination of the fresco was made and conservation-restoration work carried out on the altarpiece. This was the first complete conservation of the painting since its completion.

In order to conduct the conservation work, scaffolding was installed in front of the painting, which is located at a height that is normally inaccessible. In addition to making the conservation work possible, this also made it possible to conduct a thorough technical examination of the work. The goal of this analysis of the painting’s technical structure was to supplement the knowledge related to (art) history with additional information based directly on the primary source, i.e. the work itself.

In the local context, this is a unique painting in fresco technique, in which the wet layer of plaster has stored a large amount of information from the time of its execution. “Reading” this information provides insights into the artist’s work methods and an interpretation of the marks left by the author.

ABOUT THE HISTORICAL BACKGROUND OF THE APSE PAINTING

Johann Köler was born in a peasant family in 1826. He went on to achieve a brilliant career in Tsarist Russia. In 1875, when Köler was at the peak of his career, the Kaarli Church congregation commissioned the artist to paint the altarpiece for the church, which was designed by Otto Pius Hippius and consecrated in 1870. Although the possibility of an altarpiece painted on canvas was also considered, it was decided to commission a fresco for the architectural apse.

In 1879, the artist completed a preliminary plaster model of the work, which he used to work out the spatial placement of the three-dimensional work and introduced it to the congregation. Köler had decided that instead of painting Christ blessing the congregation above the Kaarli Church altar as the church benefactors had requested, he would paint Christ calling the poor and the heavy laden to come unto him. As the prototype for Christ, Köler chose an Estonian man named Villem Tamm, whose portrait he had painted in Kassari, Hiiumaa in 1863.

TECHNICAL STRUCTURE OF THE APSE PAINTING

The support: The structure of plaster surface that forms the support for the fresco was executed with the carefully considered aim of ensuring the long-term survival of the painting in the church that was unheated at one time — it is not applied directly to the outside wall, but onto wire netting that protrudes off the wall. In this way, Köler justifiably hoped to ensure air circulation behind the plaster surface and to prevent damage to the painting that might be caused by moisture from the exterior wall.

The execution of the so-called “buffer zone” is visible through the ventilation holes that surround the painting: screws with threads supporting the shell under the painting, which protrudes a few dozen centimetres from the wall. A net of relatively thick wire was woven onto the protruding smaller nails and this was covered by a layer of bitumen.

The paint layer: In his letters, Köler repeatedly emphasised that his aim was to execute the painting in the “true” buon fresco technique, in the spirit of the Renaissance: “This work is a fresco, not a so-called one, but a real one, i.e. a painting with pure watercolours without any glutinous binding agents, on fresh plaster, which excretes a glaze-like substance when it dries and thereby binds the painting to itself.”

This means that the pigments were mixed only with water, without any binder, and were applied to a layer of wet lime plaster prepared for that day, which, as it reacted to the oxygen in the air, formed a crystal-like layer of calcium carbonate that bound the pigment. Since classical fresco techniques were no longer known in the Russian artistic practice, Köler made a special trip to Germany to learn it.

A day’s work or giornate: Based on the source materials, the fresco was painted very quickly, in only ten days. Based on the overlapping of the plastered areas, it was possible to diagram the distribution of the areas painted by the artist in one day, or the giornate, as well as the sequence of the wet lime plaster areas utilised for fresco
(1) Distribution of a day’s work or giornate and the chronological sequence of the wet lime plaster areas. Diagram by Villu Plink.

(2) The preparatory vertical axis that passes through the centre of the composition. Photos by Peeter Säre.

(3) The 1:1 transfer of the cartoon with the help of an imprint pressed into the wet plaster and the pentimenti, or artist’s own alterations, of the composition.

(4–5) The left eye of Christ in normal and infra-red light, visualising the pigmented row of dots that was created by transferring the 1:1 cartoon using the pouncing technique.
(6–7) Johann Köler’s handprint in the plaster (8) The apse painting after conservation
painting. The painting sequence corresponded to that of a classical fresco — moving from the top down (in order to prevent plaster and paint from spattering on the area that had already been painted) and starting in the upper left corner.

The artist’s fingerprints: Probably in order to maintain his balance, the artist supported his fingers against the wet plaster surface, and therefore, several of the artist’s fingerprints are visible when the surface is seen in raking light. In addition to individual fingerprints, an entire (left) handprint can be identified as a charming detail.

Structural grid of the composition: In order to mark off the initial structural lines of the giant composition, the artist pressed a straight vertical line into the plaster that passes through the centre of Christ’s face and the arch connecting his outstretched hands, which is marked on the plaster surface as impressed lines and holes. The use of initial structural lines is a common practice in the case of such a large painting, since it is easy to lose track of the entire placement when one is close to the surface.

Cartoon: Köler probably prepared 1:1 base drawings on paper only for the more complicated areas of the composition, i.e. the figure’s hands and face. Based on traditional fresco techniques, he used different methods to transfer the preparatory drawings:

- For the finer details, the so-called “pouncing technique”, i.e. the outlines on the paper were pounced and the image was transferred by dabbing the holes with dry pigment dust. This method is visible under the pigment layer in the area of Christ’s face;
- Transfer of the cartoon with the help of an outline pressed into the wet plaster. This method takes considerably less time than pouncing, and leaves an imprint that is visible until the end of the painting process. Köler used this method to transfer the contours of the hands.

*Pentimenti* or alterations to the composition made by the artist: The position of Christ’s right hand was changed in the course of the painting process by the artist — the initial imprint of the underdrawing is located several centimetres away from the final painted hand.

**ABOUT THE TECHNICAL QUALITY AND DURABILITY OF THE PAINTING THROUGH THE PRISM OF THE ARTIST’S TECHNIQUE**

Fresco by nature is an extremely durable painting technique: a crystal-like inorganic layer of calcium carbonate forms a vitreous mass around the pigment particles, which endures even under the most difficult microclimatic conditions.

Already during the preliminary examination in 2002, it was noticed that, untypically of a fresco, the pigment had lost its binding agent in places and it came loose from the surface if slight mechanical pressure was applied. In the course of the conservation work carried out in 2013, the areas with loose pigment were mapped and compared to the distribution of the *giornate* in order to identify the reason for the lack of binding agent.

Although the artist was proud of the extraordinary pace of his painting, this is also the reason for the lack of binding agent and the durability problems. It is probable that the area prepared for one day’s work was so large that by the end of the day’s painting process, the plaster had already started to dry and lost its ability to bind the pigment.

Another durability problem resulting from the artist’s technique is obviously the massive network of cracks in the painting layer that is visible to everyone. A technical survey confirmed that we are dealing with shrinkage cracks that developed in the course of the plaster drying, i.e. they have accompanied the work since its birth.

Concept of the conservation work: The painting had become very soiled during the 135 years since it was painted. While removing the pollution dirt, an attempt was made to find a cleaning state that would leave a homogeneous patina across the entire surface of the painting. The veil of dirt on the painting had become part of the historical value of the work and if the cleaning resulted in a very contrasting result it would dim its historical authenticity. Simultaneously, the powdered pigment was fixed to make it considerably safer to clean the painting in the future.

The cracks that cover the painting were dealt with based on a similar principle. Since the cracks posed no danger to the painting’s stability, they were treated as part of the painting’s story. The conservation concept called for the reduction of their dominance with the help of optical shading, whereby the cracks are still perceivable but less predominant.

**SUMMARY**

The conservation of Köler’s painting *Come unto Me, All...* turned into a broader research story than was essential for improving the technical conditions of the painting. This information will definitely become a part of the painting’s future reception, brings us closer to the author’s technique, and adds the “touch of the artist’s hand” to a painting which continues to be important to the addressees of the work of art. And in this case, Köler’s personal touch is not just a metaphor, but an actual fingerprint in a layer of plaster.
Recent years have been rich in new finds of historical interior decoration. The increased volume of building conservation has contributed to their discovery during construction work, and more systematic research before any work is started has yielded many new finds. Major public buildings and rooms have, as would be expected, been more lavishly decorated, but some domestic interiors have also revealed important historical layers.

The new finds from churches range from highly professional to purely vernacular work, thus creating a far more complex picture of ecclesiastical interiors. At one end of the spectrum are the medieval vault paintings from St Michael’s in Mihkli and early modern decoration in St Lawrence’s in Nõo, displaying the crude but charming efforts of local masters to decorate their churches the best they could. In the Nõo church, the painting process can be detected: the skills of the painter noticeably improved over the course of the work.

In St Michael’s in Keila, relatively simple black ornamentation was discovered under the later layers of whitewash which surround the windows and the triumphal arch. The importance of this discovery lies in the fact that it might be the first dated and attributed medieval mural in Estonia: the account book of the church wardens mentions a payment in 1499 to the painter Mychel from Tallinn. Furthermore, very similar ornamentation but in two colours (red and black) was uncovered in St Mary Magdalene in Koeru, suggesting that the same master had worked there as well.

At the other end of the spectrum are the highly elaborate painted rose windows in St Mary’s in Pöide. This church also has simple faux ashlar and brick decoration highlighting architectural features and a vernacular face painted on the tower vault. The full variety of medieval wall painting styles can be found within this one church.

The most complete set of ornamental murals was found in the Holy Cross Church in Risti. The ceiling of the nave is covered with painted stellar vaults which at first sight look medieval but actually date from the early modern period. It is significant that the same pattern with small variations was repainted at least five times. This was partly caused by the need for regular repairs but it also demonstrates how fond the congregation must have been of this decoration over the centuries.
(4) Black ornamentation around a window in St Michael’s in Keila, from 1499 (?) (5) Paintings on the wall of the Holy Cross Church in Risti (6) Ornamentation similar to Koeru, in red and black in St Mary Magdalene’s in Koeru (7–8) Aaron and King David from the balcony panels in St Andrew’s in Pilistvere
In general, post-Reformation ecclesiastical interiors were more austere, but in some cases murals decorated their walls. In St Maurice’s in Haljala, ashlar imitation was discovered on pillars and the triumphal arch similar to those found earlier (e.g. in St Martin’s in Martna). Large red curtains with yellow/golden tassels were painted on the wall behind the altar in a couple of churches; the most recently found ones are from St Catherine’s in Kadrina.

However, the most interesting early modern church paintings were not discovered on walls or vaults but on a wooden balcony in St Andrew’s in Põltsamaa. On the four panels of the balcony, elders of the Old Testament were depicted: Moses, Aaron, King David and Solomon emerged from underneath a grey paint layer with Biblical verses in German and Estonian, and several later monochrome paints. Painted by a professional hand and using expensive pigments, these must have once been a real gem of the church. Further paintings are expected to be found on the rest of the panels.

The manor houses in the countryside have likewise offered pleasant surprises. Sometimes these have been a headache for construction workers when discovered late in the process, upsetting the workflow and budgets. Luckily, the paintings have delighted everyone in the end. One such case is the Aruküla manor, where fragments of neo-Classical murals appeared unexpectedly; it was possible to save and integrate them into the conservation concept. In the Lihula manor, paintings on the ceiling of the main hall were discovered before major work started. Neo-Classical paintings with later retouching once adorned the town house of the noble De la Gardie family in Haapsalu. Only fragments survive, but it was possible to display some parts of a festive frieze in the new interiors.

Even earlier paintings have been uncovered and in some cases conserved in manors. For example, in the recently studied vestibule of the Loodi manor house, diagonally placed wooden ceiling boards of the Baroque period with painted floral ornamentation had complemented the walls, which were also decorated with lavishly painted flowers and foliage. This interior is still waiting for conservation.

Another painted wooden ceiling in the town house of the Fersen noble family in Rahukohtu Street on Toompea in Tallinn dates from the same period. Here, the entire ceiling of the first-floor hall was covered by a carpet-like decoration combining bold acanthus leaves with delicate ribbon ornaments and vases with flowers. The house was restored and the ceiling cleaned, conserved and exposed in the interior. Unfortunately, one of the largest Baroque plafonds in Tallinn is not accessible to the general public.

Stylistically, the Rococo murals in the Öisu manor are even more unique. The only partially surviving decoration of the hall displays typical motifs of the era: idyllic landscapes and gardens with ancient ruins framed by pilasters with golden vases. The exquisite quality of the paintings can still be admired in spite of their poor condition.

The most recent and very well preserved finds, the murals in the Vana-Võidu manor, deserve mention. These mid-19th-century paintings in the upper frieze of a small dining hall are top-quality copies of ancient Roman frescoes from Herculaneum. The extremely detailed and refined paintings depict birds and insects: a dove with a letter, a chariot pulled by a parrot and lead by a grasshopper, a butterfly and a bug, etc. The meaning and author of these masterpieces have yet to be determined.

All of these finds tell us that more discoveries can be expected and this should be borne in mind when planning work, even in buildings where no traces of historical interior decoration have previously been detected.
THE NEED AND METHODS OF STUDYING HISTORICAL WALLPAPERS IN ESTONIA

Kadri Kallaste and Viljar Vissel

Wallpapers constitute a significant part of historical interior design and studying them is no less important than analysing painted surfaces. Over time, many wallpapers have been removed from their original locations, and therefore not much research material has survived. In order to study, interpret and document the existing material as successfully as possible, a suitable methodology should be employed. The current article focuses on the methods that rely on the principles suggested by the conservator and researcher Frank Sagendorph Welsh, and the authors’ own observations. The main aim is to teach people to notice and appreciate historical wallpapers by presenting examples of excellent and less successful solutions.

RESEARCHING WALLPAPERS

IN SITU VERSUS AS SEPARATE FRAGMENTS

Researching wallpapers can be divided into working in situ and analysing secondary materials, including the context of the object and supplementary materials. Interior design can be revealed via historical photographs, memoirs and chronicles. The more methods used, the more objective the results of the research. Relying on Frank S. Welsh’s article, the two mentioned research trends are divided into five main stages.

1. **In situ research.** Researching wallpapers in their original location can yield material in layers, as well as fragments. Besides the design, printing method and the materials of the wallpaper, this makes it possible to study the context and fitting. If the wallpaper has already been removed from the wall (destroyed), only fragments can be studied. This situation is unfortunately prevalent in Estonia. In order to find fragments, the surfaces underneath floors, doors and window casings should be inspected. It is also advisable to check behind cupboards, wall panelling, window shutters and switches.

2. **Evaluating wallpaper in the context of the rest of the interior** requires investigating other layers of decoration in the room and comparing them with wallpaper findings. It is then easier to establish the extent of alterations in the room.

3. **Establishing the wallpaper pattern,** which helps to date the wallpaper. Comparing analogues with finds makes it possible to determine the missing details in a partially surviving pattern. Thoroughly systematised collections are good sources to track down patterns. Web databases are the easiest to access. Currently, a virtual catalogue of wallpaper samples found in Estonia is being compiled and supplemented (www.tapeedikogu.ee), combining many small and large private collections. The aim of the catalogue is to offer information for researchers and other interested people, to help them to date and evaluate finds according to analogues. Anyone needing more information should examine the virtual database created by the Finnish National Board of Antiquities, http://tapetti.nba.fi/.

4. **Establishing the print method used for producing wallpaper,** which indicates both the age and the price of the wallpaper. Until 1850 wallpaper was printed using printing blocks or stencils carved from wood. They were later produced industrially, with rollers, and beginning in the early 20th century by the silk-screen technique.

5. **Establishing the composition of materials used in wallpaper production.** This stage should be an inseparable part of any research, but due to limited resources it is rarely undertaken. Carrying out lab tests on rare wallpaper finds is strongly advised.

DOCUMENTING RESEARCH

Wallpapers should be investigated before demolition and restoration work begins. It is sensible to include in the research process specialists, not just interior architects. The documentation should contain necessary photographs that record the state of the object, as well as colour and measuring scales. The locations photographed should be noted on a plan or drawing. The report should always mention the precise location of the analysed bits of wallpaper, their chronological succession, producer’s marks on the borders of the panels, the widths of the panels or the sizes of paper sheets, the manner of installation and the use of mackle paper. As the decision about preservation — whether to preserve and how — primarily depends on the results of the research, the work should be carried out in situ. To separate the layers, the wallpaper that is lifted should be covered with a prophylactic layer. Layers partially removed from the wall can be re-attached with Japanese paper and methyl cellulose. Taking wallpaper samples from just any place could give a misleading idea.
In situ research. The uppermost layer can be separated from the lower ones by a prophylactic layer made of Japanese paper. Photo by Andreja Dragojevic. Older wallpaper layers can also be displayed as sample areas. Photos by Kadri Kallaste. Wallpapers surviving in their entirety can often be found behind panelling. The neo-Rococo panelling in the dressing room of the countess of the Puurmani manor revealed a beautiful Chinoiserie wallpaper. A wholly surviving 1930s wall scheme discovered during interior finishing work at Roopa 11 in Tallinn.
(5) The first layer of wallpaper in the room adjacent to the big hall in the Juuru vicarage, dating back to the renovation in 1842. Photos by Viljar Vissel (6) Wallpaper of the 1860s with stylised ivy vines in the office of the Juuru vicarage (7) The third layer of wallpaper, from 1875, in the office of the Juuru vicarage (8) Unique wallpaper imitating drapery in the main building of the Loodi manor. Turn of the 18th–19th centuries. Photo by Karin Ojaste (9) Late 18th century wallpaper resembling Tarot cards and inspired by motifs of nature in the former staircase in the main building of the Loodi manor. Photos by Viljar Vissel (10) The second layer of wallpaper with lavish ornamentation in the former staircase in the main building of the Loodi manor dates from the mid-19th century (11) Striped wallpaper from the early 19th century in the main building of the Loodi manor.
of the object’s design, and does not provide information about possibly existing bordures or the whole design scheme of the room. A sample should cover at least one panel width and a repeated pattern. Historically, walls were not always covered with the same pattern from skirt- ing board to ceiling cornice. This kind of design is typical of mainly 20th century interiors. Researchers of earlier interiors should thus investigate typical wall schemes of a particular era and use them to determine other applications related to wallpaper. Studying wallpapers and their rich and fascinating world helps to better understand the peculiarities of local interiors and evaluate them in the context of materials from neighbouring countries and elsewhere. In addition, wallpaper patterns, materials and quality can indicate the function of the location, the inhabitants’ preferences, social status and financial resources.

EXAMPLES
Among the latest examples of wallpaper research are the historical wallpapers found in the Juuru vicarage and in a wing of the Loodzi manor. In 2012, 65 different kinds of wallpaper were discovered in the six rooms of the Juuru vicarage, made between 1840 and 1980. The building itself dates from the second half of the 18th century. The fine architecture of the building indicated quite clearly that the seemingly modest interiors might conceal much more. Great help in dating the wallpapers was provided by the careful recording in the Juuru church chronicles of repairs and reconstructions. A significant dating method involved comparing the style of ornaments with analogues. Analysing the layers revealed the extent of repairs. The Loodzi manor wallpapers date from the post-construction period and were discovered in summer 2013, when a plan for preparatory research was being compiled. This is a remarkable find and offers an excellent overview of the original design of the whole floor. Besides drapery and contrasting striped wallpaper, mention should be made of the first of the two wallpapers in the former staircase. The pattern, with even distribution resembling Tarot cards, is adorned with naïve geometrical figures inspired by nature.

COMMENT BY HELI TUKSAM, TARTU ART COLLEGE, WHO STUDIED THE INTERIORS OF THE LOODI MANOR
The annex was definitely used by the family, as indicated by the grand design of the ground floor and majestic wallpapers on the first floor. The central axis had a room with a vaulted opening with the most imposing wallpaper. Interestingly, the light blue drapery wallpaper was put on upside down. Either it was not considered crucial to follow the drapery or whoever carried out the task was not a professional. The wallpaper in block printing technique is on a thick, handmade paper put together with sheets of paper about 50 × 50 cm in size, each of which make up a panel. The fibre sample of the material revealed a mixture of flax and cannabis. The wallpapers were documented and it is advisable to restore the original design during restoration work.

THE STORY OF WALLPAPERS IN THE MAIN BUILDING OF THE SUUREMÖISA MANOR IN HIUMAA BY VILJAR VISSEL
The interior of one of the biggest and grandest Baroque manor houses in Estonia was also decorated with a large number of different wallpapers. The building, used today by the Hiiumaa vocational school, was restored in 2014–2016. Unfortunately, time was limited and money and skilled workmen were scarce. The modest budget of restoration work sometimes justifies the well-known sentence, “Poverty conserves”. With its large number of interior finishing layers, the Suuremõisa manor can actually be grateful to the tight budget: so much material was left over for future research. Before the latest restoration, extensive research into the interior finishing was carried out in the building. Besides specialists, students were involved, and did thorough preparatory work, among other things selecting wallpaper fragments with eloquent patterns to be displayed. Among the surviving wallpapers were four discoveries covering an especially extensive area. It was decided to restore two, as their condition was pretty dismal. Towards the end of the work, the National Heritage Board turned to paper conservators of the Estonian Open Air Museum’s conservation and digitalisation centre Kanut, asking them to determine the quality of work. Not much good can be said about the restoration of these two wallpapers. The biggest achievement was perhaps the post-restoration general outlook of the blue wallpaper, whose brightness impresses all visitors. Unfortunately, massive overpaintings make it impossible to distinguish the wallpaper’s original area. The idea of restoring the ground floor velvet wallpaper was brave, but the results are catastrophic. Displaying fragments surviving across the room on just one wall is impossible even in theory. Instead, the better preserved panels should have been chosen for display. The current outcome does not make it possible to see the charm of the wallpaper’s printing techniques, which seem to have been originally luxurious and hedonistic.
(12) Wallpaper fragment displayed in the main building of the Suuremõisa manor, with a bit of painted panelling showing underneath

(13) Velvet wallpaper with printed gold ornamentation on the ground floor in the main building of the Suuremõisa manor

(14) Restored wallpaper in the first floor drawing room in the main building of the Suuremõisa manor
MYSTERIOUS GLAZED TILE STOVE – AN ART PROJECT OF THE COUNTESS?

Artur Ümar

One of the most mysterious glazed stoves in all of the Estonian manors stands in the guest lounge of the Olustvere manor. What makes the stove strange is its singular set of motifs. The motifs are based on the technology of wallpaper tiles (the tile motif is transferred as on wallpaper panels) and the form, without string courses, makes a whole. This was clearly the doing of Count Nikolai von Fersen’s wife Sofia, who had her own name painted on a tile, together with the dates when the stove was completed: 1899–1901. Everything seems to indicate that the stove was her “experiment” from the start. Some even claim that the painting is her own work. The successful experiment is also special because of its choice of material: there are few stoves where the tiles are made of locally unknown white clay. This indicates contacts with Germany. Besides, coloured glazed stoves had never been seen in Estonia before, especially such bright hues (except for imported Renaissance-style tiles and a few historicist stoves brought from Turku, Finland).

The origin of the motifs is still unclear. The maple leaves lined with lush foliage ornamentation seem quite modern even today, let alone at the turn of the 20th century!

The saga of restoring the stove has been laborious, but full of pleasant surprises. The School of Service and Rural Economics, which managed the Olustvere manor during the Soviet era dreamed of restoring the stove for some time. In 1999 the stove was taken apart and was lying on the floor: 40% of its stones were broken or had disappeared. The school asked a number of potters for ideas and cost estimates. They contacted Oldschool OÜ only in 2015, with a wish to copy the missing tiles and re-build the stove, but the company was unable to accept the proposal because of other projects. Nevertheless, Oldschool oversaw the project, compiling the necessary documentation and handling general management.

After Joosep Metslang’s drawings had been coordinated with the Heritage Board, a skilled potter had to be found. Cooperation with Priit Allas from Amme

(1) The stove in the guest lounge in the Olustvere manor after restoration. Photo by Carl Naamuri

(1) The stove in the guest lounge in the Olustvere manor after restoration. Photo by Carl Naamuri
Keraamika was successful: although the first batch had to be thrown out, the next batch was fine (it is not unusual in ceramics that the first batch fails). This of course delayed the time schedule, but the new tiles were ideal for the stove. In order to find a potter, the school got in touch with several masters, but chance led them to Carl-Johann Naanuri. His pedantry and up-to-date knowledge produced an excellent result, and earned him the Heritage Board’s award for best artisan of 2016. Remarkably, Naanuri used a modern dental laser in carving the aschans. The idea of concealing aschans behind tiles was suggested by Oldschool, but Naanuri took it quite a bit further. He tackled the flue system by using oven modules made of fire clay, which are widespread in Austria. The calculations for flues were carried out with a special programme, which helped to establish the maximum heat storage capacity.

An equally significant role was played by Kaie Pungas and her team of painters. The similarity of the new paintings to the originals was an especially pleasant surprise. Kaie precisely captured the peculiar tonality of paintings made over one hundred years ago and the motif of a simple maple leaf. It is by no means easy to imitate the far-from-perfect details that produce the romantic whole. Each line is of a different shade and unique; a copy can be distinguished from the original only through the drawing of damages added to the report, which notes even the tiniest cracks. The original stove had been built on railway rails by a potter from Tartu. His name, S. Mad. Tepfer, was written on a wall, together with the date 1901, probably marking the beginning of the work, as there would not have been enough space to write them later. The tiles were probably produced in Germany, indicated by the German markings on the inner sides (e.g. *Linke Eck kachel Unter*), whereas in the Estonian cultural space everything was at that time written in Russian. White clay also refers to foreign origin. Whether Sofia had the tiles painted elsewhere or whether they were painted and fired in Olustvere is not clear. However, they certainly make up a remarkable whole, and have now been beautifully and accurately restored.
In the early hours of May 16, 2016, a devastating fire hit Piirissaar, a small island in Lake Peipus near the Estonian-Russian border. Piirissaar is one of the areas in Estonia that have traditionally been inhabited by an Old Believers community. Due to the fact that it is an island and therefore has had fewer influences from the surrounding cultural context, the traditions, lifestyle, and heritage of the local Old Believers are especially interesting.

The fire destroyed several houses, among others the local prayer house. The prayer house contained numerous icons and crosses (both wooden and metal) and books dating from the 17th to 20th centuries, as well as different interior elements: candle holders, incense burners, oil lamps, icon cases etc. Forty items from the prayer house were listed as national monuments under Estonian law. Thirty-four of them were icons and crosses painted on wood, five were metal icons and crosses, and there was one book.

What precisely happened during the fire and how the evacuation of the objects from the prayer house was organised is still unclear. Thanks to the Estonian Police and Border Guard, two officials from the Estonian National Heritage Board were flown from Tallinn to Piirissaar, arriving at the location by noon, roughly 12 hours after the fire started. By then everything that could possibly be salvaged from the burning prayer house or from the ruins was taken to a clean and dry room at the local waste collecting station.

The icons and books had serious heat, smoke, fire, and water damage. The first task was to do an inventory of the evacuated material, in order to determine and document the scope of the damages. The next step was to try to dry the books as much as possible with the tools at hand, and store everything in a way least damaging to the icons and books, but it was clear that a large amount of the material needed to be evacuated from the island for conservation.

Two days later, on May 18, conservators from the National Archives of Estonia and Tartu Art Museum, along with officials from the National Heritage Board, were again on Piirissaar. The aim was to adjust the provisional storage space and instruct the local community on ventilating the space and conducting daily drying of the books to avoid mould.

A little more than two weeks after the fire, on June 1, 24 damaged wooden icons and crosses and two destroyed icons were evacuated from the island (some books had already been taken to the mainland prior to that). The evacuation was financed by the state funded programme “Preservation and development of places of worship” and organised by the National Heritage Board in cooperation with the Estonian Open Air Museum’s Conservation and Digitation Centre Kanut.

Most objects were extremely fragile; in addition to damages caused by the fire and the extinguishing of the fire, there was also serious wood vermin damage from earlier. Therefore, the safe transportation of the objects was a challenge. All panels were covered in situ with facing paper to avoid the loss of paint layers, and transported in special cases and racks built for the occasion.

After arriving in Tallinn, the objects received wood vermin treatment and were then stored in a stable environment in the isolation chamber of the Art Museum of Estonia. It was clear that after the panels had dried they urgently needed emergency conservation.

Since the number of the objects in danger was large and the schedule was tight, it was obvious that a large number of conservators were needed for the job. Following the Italian example, where conservators from across the state come to the rescue after catastrophes, the decision was made to organise something similar. The National Heritage Board contacted all museums and universities that employ conservators, asking them to join the workshop organised for the emergency conservation of the icons from the Old Believers’ prayer house. The organisations were eager to participate. The workshop featured over 40 conservators from the Estonian Open Air Museum, the Art Museum of Estonia, the Estonian National Museum, Tartu Art Museum, the Estonian Academy of Arts, and Tartu Art College; the latter two provided both professional conservators and students.

In order to set up a framework and methodology for conservation and documentation, a working group of experts from the National Heritage Board, the Estonian
(1) The rescue workshop in a former cow shed of the Setu farm in the Estonian Open Air Museum. Photos by Urmo Treisalt (2) Cleaning of the icon depicting 12 scenes in the life of St Nicholas the Wonderworker and four saints (3) Removal of the prophylactic facing paper (4) In some places the paint layer was severely detached from the support. Photo from the Conservation and Digitisation Centre Kanut of the Estonian Open Air Museum
Open Air Museum’s Conservation and Digitisation Centre Kanut, and the Art Museum of Estonia was formed. The group arranged everything, from finding proper space and organising logistics to preparing detailed conservation methodology and acquiring the tools, chemicals, equipment etc. needed for the work. An important aspect was making sure that everything done during the workshop was documented adequately and in a consistent manner. Therefore, all participants used a digital graphic documenting system developed at the Art Museum of Estonia. The basic funding for the workshop came from the budget of the National Heritage Board. The organisations who sent their conservators to participate at the workshop did so free of charge.

The workshop took place October 24–28, 2016 in the Estonian Open Air Museum. During the workshop, facing paper was removed from all panels, the paint layers were consolidated and fixed to the ground, and basic surface cleaning was conducted. In general, the workshop was even more successful than hoped, but since the icons had been rapidly covered with facing paper during evacuation, the conservators discovered that the damages to many icons were more severe than suspected at the beginning.

As a result, of the 24 damaged icons 12 can likely be aesthetically restored so that they can be used in their original function in a new prayer house in the future. The scope of the damages to the rest of the icons varies, yet none of them has completely lost their artistic and cultural value and they will maintain their national monument status.

The Estonian National Heritage Board is now organising follow-up conservation and restoration work so that the icons can once again be exhibited.
In autumn 2013 the Art Museum of Estonia started an extensive project focusing on the investigation and conservation of the retable of the high altar of St Nicholas Church in Tallinn. The altar is among the grandest and best preserved late medieval artworks in Europe, and was completed in 1481 in the workshop of the prominent Lübeck master Hermen Rode. In size, it is one of the biggest in the 15th century Hanseatic towns: the width of the open altar is over 6 m and the height over 3.5 m. The double-winged retable has painted outer wings and more than 40 polychrome sculptures in the interior.

The altar is normally displayed in half-open position and is fully revealed in the most festive, third view only three times a year, on St Nicholas’ Days (6 December and 9 May) and on All Saints’ Day (1 November). For visitors who wish to open and close various views of the altarpiece on their own, the first stage of the project in the Niguliste Museum involved setting up a touch-screen, where modern interactive means enable anyone to enjoy the complex artwork and stories about the saints.

The altar was restored in 1975–1992 by experts from the Moscow Research Institute of Restoration under the supervision of the Russian conservator Nikolai Bregman. During that period, the painted wings of the retable were cleaned, as were, partially, the interior décor and sculptures. The disrupted conservation work was restarted in 2013 and will go on long after the investigation project is finished.

**BETWEEN THE LAYERS BY MEANS OF NATURAL SCIENCES**

Besides conservation work in the Niguliste museum under the eyes of visitors (2013–2016; the work is now continuing in the conservation studios), the altar underwent large-scale technical investigations of the materials and techniques used in producing the altarpiece. These aim to place the artwork in a wider art historical context: stylistically, the altar was supposedly made in Rode’s workshop, but the authorship has not been confirmed either by signature or any document. Comparative studies with other works by Rode’s workshop have confirmed this attribution and helped to better reveal the creative practices of this prominent Lübeck workshop. Research carried out by Estonian scientists in October 2014 on the only altar signed by Hermen Rode, situated in the Sankt-Annen-Museum in Lübeck and known as St Luke’s retable, yielded fascinating starting information for a broader analysis of the technical means and character of Rode’s workshop.

Besides investigating the altar itself, a significant aim of the Rode project was to map, test and develop the capacity and resources of technical art research in Estonia. It was clear that there were internationally recognised specialists and technology at the beginning of the project, but they were scattered among different institutions and did not co-operate. It can be claimed that capacity building was the most successful part of the project and has led to a number of further research projects.

**RESEARCH INSIDE AND OUTSIDE THE FIELD OF ARTWORKS**

The Rode altar research was carried out in collaboration not only with the usual institutions involved in art research (e.g. the conservation and digitalisation centre Kanut of the Open-Air Museum, the Department of Conservation of the Estonian Academy of Arts, and the Chair of Analytical Chemistry at Tartu University), but also with seemingly unrelated institutions. The instruments used in art research are often not primarily aimed at analysing artworks, and therefore it is reasonable to look for help further from the specific field. An example is the x-ray analysis of the altarpiece carried out in cooperation with the Tax and Customs Board. As most institutions dealing with art investigations in Estonia do not have x-ray instruments, the artworks are usually x-rayed in hospitals. Transporting the monumental altarpiece was, however, quite impossible. Thus a portable x-ray machine used by the Tax and Customs Board at Estonian borders came in handy in our research.

Another example of cooperation outside the art field is with the Estonian Environmental Research Centre. The joint undertaking determined the chemical elements used in creating the artwork by the x-ray fluorescence (XRF) method. This is a portable instrument which detects the
elemental composition of each particular area of the artwork. The instrument is primarily effective for consumer protection: it determines the presence of such harmful metals as lead and mercury in, for example, toys or electronic products. The aim of art investigation, however, is to determine the existence of elements in pigments and to discover whether gold is really gold, whether dirt is hiding blue or green pigments, which sculptures were later painted over and whether a white colour is chalk or perhaps white lead pigment.

IMAGING AND INFORMATION TECHNOLOGY IN HERITAGE RESEARCH
Besides natural sciences, the Rode project initiated wide-ranging innovative imaging and information technologies in the area of cultural heritage. These have provided input for the investigation activities, e.g. multispectral and raking-light photography have revealed those aspects of objects that ordinary observation cannot. Different wavelengths (e.g. infrared) of electromagnetic radiation have revealed the hidden world under paint layers, which offers excitement, humour and different interpretations, as well as comparisons with other works produced in Rode’s workshop.

Modern information technology has also made it possible to contextualise, visualise and archive the extensive analytical data and to use it both for interpretation and for communicating the results of scientific information. A prototype of the altar’s 3D model has been developed, where two- and three-dimensional information can be stored and presented to the general public.

THE RODE ALTAR AS A TEACHING RESOURCE: CHEMISTRY CAN ALSO BE STUDIED AT AN ART MUSEUM!
A significant part of the project was educational work. Didactic programmes for different age and target groups that combined humanities and natural sciences and introduced heritage from new angles were developed and carried out.

The project included a series of international workshops for university students and experts in the field. Depending on the focus, workshops were organised together with the Estonian Academy of Arts, Tallinn University, Tartu University and the Tallinn University of Technology. The four practical workshops were labelled “Questions of conservation”, “Rode imaging event”, “Rode investigation workshop” and “Wood and art”. The experts who led the workshops included the conservator Nikolai Bregman from Russia, the polychrome wood conservator Dr. Arnulf von Ulmann from the German National Museum, the conservator and art historian professor emerita Anne van Grevenstein from Amsterdam University, the conservation chemists Dr. Ulla Knuutinen from Helsinki and Jyväskylä Universities, Professor Ivo Leito and Dr. Signe Vahur from Tartu University, the dendrochronologists Dr. Aoife Daly from CATS and Dr. Alar Läänelaid from Tartu University,
Cooperative research: x-ray analysis in collaboration with the Tax and Customs Board; imaging and IT solutions in cultural heritage with Archeovision; element analysis using XRF method with Estonian Environmental Research Centre (XRF analysis being conducted on St Luke’s retable in Sankst-Annen-Museum in Lübeck).

the conservator Dr. Jorgen Wadum from CATS and over ten top specialists in imaging technologies.

Secondary school pupils could study organic and inorganic chemistry within the usual school curricula by means of the technical investigation used on the Rode altar. This helped children to better understand the links of chemistry and physics with everyday life.

Information connected with the Rode project was conveyed to the wider public via various media, such as film clips, multimedia means and a blog describing the everyday work of the conservators-researchers. All this is still accessible on the Niguliste Museum’s homepage: www.nigulistemuuseum.ee.

GREAT WORK REWARDED

The project was regarded as successful not only by the many participants. It was awarded the title “Nationally Recognised Promoter of Science” by the Estonian Research Council and the Ministry of Education and Science in 2015, and won the Estonian Annual Museum Award in 2016 in the category of scientific events.

Even wider recognition came in 2017, when the project Rode Altarpiece in Close-Up received the Europa Nostra /EU Cultural Heritage Award of the Creative Europe programme in the category of scientific research.
In 2016, 350 years had passed since the completion of the pulpit, 320 years since the altar retable and 160 years since the altar painting of the Tallinn Cathedral. The question was raised: how to celebrate the anniversaries, and promote the listed artworks and their creators in an engaging way for the public?

From the discussions emerged the idea of building a scaffolding around the altarpiece which would be both functional and aesthetic. It had to be an independent piece of art in itself and to delicately relate to the historical altarpiece. The idea materialised in co-operation between Hilkka Hiiop (Department of Conservation, Estonian Academy of Arts), Juhan Kilumets (Rändmeister OÜ) and Hannes Praks (Department of Interior Architecture, EAA). With help from the congregation, a design competition was held and the third-year student Johanna Sepp won.

With the scaffolding the idea was conceived of continuing the just finished project Rode altarpiece in close-up (2013-2016, Niguliste Museum) with technical investigations of art works of Christian Ackermann. The aim was to study his altarpiece in the Tallinn cathedral in comparison with all other works attributed to Ackermann in Tallinn and in Estonian rural churches. This is how the research project Christian Ackermann – the arrogant and talented Phidias from Tallinn (2016–2020), uniting different institutions and disciplines, was born. The co-ordinators of the project are Hilkka Hiiop and Tiina-Mall Kreem (Art Museum of Estonia), and the principal researchers are Juhan Kilumets, Isabel Aaso-Zahradnikova (EAA/AME) and Anneli Randla (EAA), in co-operation with many other specialists.

The scaffolding in the cathedral has become an extremely popular venue for excursions. This did not hinder the research and conservation of the altarpiece undertaken with the help of the conservation students of EAA. The investigations include x-ray and element analysis (the Tax and Customs Board, and the Estonian Environmental Research Centre), stratigraphic analysis (EAA), pigment and binder analysis (Dept. of Analytical Chemistry, Tartu University), dendrochronological analysis (Dept. of Geography, TU), image technological investigation and 3D modelling (EAA and Archeovision OÜ), and stylistic and technical analysis of the sculptures (AME).

From the results of these investigations, a dataset of typical features of the Ackermann workshop was created which serves as a template for the analysis of other works by Ackermann. All information gathered and analysed, as well as photos and 3D models are accessible to researchers and the general public online at www.ackermann.ee.

In addition to on-site research, archival studies (Tallinn City Archives) are being conducted, which have already shed new light on the personality and activities of Christian Ackermann, the most talented and scandalous woodcarver of Baroque-era Estonia, who broke away from the powerful guild system and worked as a free master. All of the significant church furnishings in northern Estonia which date from the 1680s to 1710 (altarpieces, pulpits, coat-of-arms, crucifixes and perhaps the baptismal font of the Swedish St Michael’s Church in Tallinn, unique in the Estonian context) were made in Ackermann’s workshop.

The whole project is being undertaken in public to raise awareness of Ackermann’s legacy, of modern research methods and of the conservation needs of artworks. The project Christian Ackermann – the arrogant and talented Phidias from Tallinn will end in 2020 with a monograph and exhibition in the Niguliste Museum and satellite exhibitions in all places where Ackermann’s works can be found.
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