In Memoriam

Katia and the industrial heritage

The Acts of our ICMAH Conference about Industrial Heritage are dedicated to our colleague and friend **Katia Baslé**.

With Katia we have shared number of experiences in particular when I was director of the History Museum of Marseilles (France).

I shall recall here her international dimension in the field of industrial Heritage. Her interest in this field was as enthusiastic and deep as the one she used to develop for any of the interests she would address : With her, it was exigency, pleasure and generosity.

I shall take the example of our last common project, the organisation of our international ICMAH Conference about Industrial Heritage which was held in Baku in October 2017- and without her.

Within the frame of the international Committees of ICOM, being the Chair of ICMAH, (ICOM International Committee for Museums of Archaeology and History) I has to organise the annual ICMAH Conference 2017.

It had been decided, thanks to our colleagues from Azerbaijan National ICOM Committee and Icherisheher Reserve that it was going to be held in Baku and on the topic of industrial Heritage.

I was familiar to the subject, having already collected this kind of specific items to present the 19th and 20th centuries collections for the History museum of Marseilles. On her side, Katia, in charge of preventive conservation, was developing a Master in History of Technics.

It was evident for me to ask her help to set the foundation of our Conference. As soon as our first meeting, Katia had identified our specificities amongst the international context and proposed different axes.

For our second meeting, she had already accumulated articles, references, and papers, those of TICCIH 2015 mainly, she had been attending.

This major professional event had welcomed hundreds of participants… and in the middle of this crowd; Katia had attended many conferences and was capable to remember the ones which could fit adequately our needs.

We build the program during a third meeting, with our ICMAH General Secretary, Burçak Madran, and decided that Katia would come with us to Baku and would be our « keynote speaker ».

It was on April 20th 2017, and happy with this lovely perspective, we share a nice meal.

We had no idea it would be our last meeting.

Our ICMAH Conference was held in Baku in October 2017, with Katia's pre-program orientations but without her.

The acts of the meeting are dedicated to Katia with thanks and affection.

To the memory of Katia, I wish to associate the memory of Odile Lisbonis, another « member » of the industrial heritage family.

She also left us so suddenly.

We miss her and them so cruelly.

Myriame Morel-Deledalle

Chief Curator
ICMAH Chair

Katia Baslé was chief art Works, coordinator for preventive conservation Heritage at CICRP (*Centre interdisciplinaire de conservation et restauration du patrimoine*) of Marseilles.

She died suddenly in June 2017.

Some industrial heritage typologies

Paul Smith

Ministry of Culture, France

The heritage of industry – its landscapes, buildings, machines, artefacts, archives and memories... – began to be recognised and appreciated during the 1960s and 1970s. Great Britain, the 'first industrial nation', was the pioneer here. From the 1950s, the Inland Waterways Association was campaigning to save the country's canals, the historical lifeblood of what we call the industrial revolution, followed by initiatives to save stretches of the country's railway heritage and to give them new life as tourist attractions, 'great days out for all the family' as they are called in England. The expression 'industrial archaeology' was invented there in 1955 and the expression, and its practices, soon spread to other countries of early industrialisation in continental Europe and North America. The International Committee for the Conservation of the Industrial Heritage (TICCIH) was founded in 1973 at Ironbridge, England, proclaimed 'the birthplace of the industrial revolution'.

In this new field, the earliest programmes of study, documentation, interpretation and preservation were, more often than not, of a thematic nature : brick and tile works, charcoal-fired blast furnaces, water-powered sites, textile mills, port installations, matchmaking factories... Understanding the long-term evolution of any industrial process and seeing how this evolution gave rise to new ways of organising production, to new machines and to new architectural forms, understanding, in other words, and being able to evaluate the succeeding layers of heritage bequeathed by this particular industry requires a considerable research investment, years even of 'dry' research in libraries and archive repositories and exploration in the field, sometimes wet and muddy.

Nonetheless, although encyclopaedic overviews of the industrial heritage are consequently difficult to put together, it is perhaps possible to offer other, general typologies of the industrial heritage, in terms of the conservation, or non-conservation status of that heritage. With illustrations taken primarily from France where I work, I would like then to put forward and think about seven categories of industrial heritage that can found today in any country.

Gone... and forgotten

By definition, this first category of heritage that has disappeared and is now forgotten is a difficult one to illustrate. We might think, however, of artefacts that are clearly machine-made, but we no longer know when or where or by whom. We might be confronted with ageing collections of industrial hardware without knowing anything about the uses for which these machines were designed or the factories they were recovered from. Or we might come across some archival mention that tells us little more than that at some time in the past, at such-and-such a place, there used to be a factory or a workshop manufacturing such-and-such a product. An enquiry into the industries of Paris, published in 1864, tells us for example that more than a third of the capital's total population of about one and a half million inhabitants were workers, that the city's factories and workshops were driven by 1 200 steam engines and 500 horse gins. But although this enquiry can also tell us that there were nineteen textile concerns in the

14th arrondissement (where I live), it gives no addresses for me to go to today to see what vestiges might still be there.

Statistically-speaking, however, it is worth remembering that this category of what we might call 'ghost factories' is probably a well-stocked category, particularly where urban environments are concerned. The disappearance of heritage through simple abandonment and dereliction, through wars, fires, floods or earthquakes, through deliberate destruction to make way for new construction, is undoubtedly a common fate, in the manner of the disappearance of animal species: apparently more than 99 % of all animal species that have ever lived on our planet are now extinct.

Gone... but not forgotten

A second category of industrial heritage, also represented by multitudes of examples, concerns sites of which there are no longer any physical traces on the ground, any identifiable buildings or infrastructures, but for which documentary evidence of various types, various origins and various periods – business papers, contemporary written descriptions, catalogues, paintings or engravings, photographs, post cards, films…– are extant. This evidence may have survived by chance, by good luck, as part of private, library or museum collections, or it may be a record deliberately created to preserve information about a site already recognised as heritage and threatened with destruction. The Renault car plant at Billancourt, to the west of Paris, dating back to the end of the nineteenth century, is probably one of the best documented and most thoroughly researched industrial places in the world. The bibliography of technical, historical and sociological studies of the factory is already a sizeable volume in itself. Between 1910 and 1970, the firm had an in-house photographic service which today leaves us some 420 000 black and white photographs of the factory, its buildings, its machines, its social facilities and, above all, its products. Several films from the 1920s and 1930s record the installation of the factory's first Ford-inspired mobile assembly lines. And when the closure of this emblematic factory was announced in November 1989, even more films, photographs, articles and books were generated, by amateurs, by the Renault firm itself, by local authorities, by TV companies and by the Ministry of Culture. The 'deconstruction' of the factory buildings, as their demolition was called, was also well documented. Indeed, 'being demolished', 'in the course of demolition', might also constitute another, specific status category for the industrial heritage. It is a constant feature of urban history that, as far as I know, remains little studied.

In the manner of rescue archaeology, then, industrial sites programmed for demolition can be recorded before they disappear for good. And alongside photography, film and measured drawing, modern techniques of 3D laser scanning are amongst the tools available today for recording industrial sites or machines. Information technology can also be applied to earlier documentary records to create models for research purposes or for interpretation in exhibitions, museums or on the web. The example here is of another car factory in the Paris suburbs, the factory built by Adolphe Clément-Bayard in 1898, probably the first purpose-built car factory in the world, demolished in 1988 but documented by the Ministry's inventory service.

In a few cases, the perceived historical significance of a site that has disappeared may be sufficient to warrant archaeological excavation, although such excavations are exceptional in the realm of industrial archaeology. A recent example here, however,

concerns France's first railway station at Le Pecq, 20 kilometres to the west of Paris on the river Seine. Dating from 1837, this terminal station was abandoned after an extension to the line ten years later. The building was known only from a couple of engravings, but salvage excavation carried out in March of this year found new information about the spatial organisation and the foundations of the station buildings, and of course raised new questions for historical research.

Not yet identified as heritage

My third category, another tricky one to illustrate, concerns places of industry that are not yet recognised as heritage, not yet 'patrimonialised' as the French put it, 'heritagised'. Isolated sites in regions where an awareness of the significance of the industrial heritage is relatively recent might perhaps feature in this category, like the working coal mine at Senjski Rudnik in eastern Serbia, still using an 1878 steam engine for its winding gear. But, in point of fact, the heritage interest of this exceptional site is now fully recognised and the Serbian Ministry of Culture, with European support, now plans to preserve the whole landscape as an open-air site museum.

A more frequent variety of non-recognised heritage is that of small-scale workshops transformed into housing, commercial premises, restaurants or whatever, the original productive function of the place being forgotten and not researched. Paris in the nineteenth century, as we have already seen, with between a third and a half of its population qualified as workers, was the industrial capital of France, but many of its backyard urban workshops and small-scale factories still await proper identification.

Another type of heritage not yet recognised as such is that represented by recent industrial facilities, still in production, on which we have insufficient historical perspective. For their technical, social or architectural interest, some of the factories being built today may perhaps be appreciated as heritage at a future date, but only a handful of star architects – Norman Foster, for example or Renzo Piano – can give us 'instant' heritage. Despite the attraction that Chernobyl now apparently holds out for a special clientèle of 'dark' or post-apocalyptic tourism (10 000 visitors a year!), many ordinary people find do not find it easy to appreciate nuclear power stations as industrial heritage.

Recognised, but transformed into something different

Where the industrial heritage is concerned, more than for other heritage 'families' such as mosques or temples or manor houses, which can keep their original functions as places of worship or family homes, this fourth category of disused industrial sites that have entirely lost their original function and have been transformed into something else is a common one.

Ruins

Many abandoned industrial sites, particularly isolated ones in rural environments, become ruins, and, for two reasons, this particular status seems to me to be a significant one. Industrial ruins can appeal to our aesthetic and romantic sensibilities, and often inspire artists, photographers, film-makers, music video makers. A host of web sites and forums are specifically devoted to images documenting the decay of derelict industrial buildings. Abandoned factories frequently become 'canvasses', so to speak, for new, ephemeral creation under the general heading of 'street art'. These ruins can also stimulate historical research, elicit the curiosity to understand the past glory and prosperity to

which the ruined buildings bear sad witness. Secondly, although this is a relatively common, indeed a representative state of the industrial heritage, it is, by definition, a state without sustainability. If they are not adapted to new social and economic uses, in which case their derelict appearance will be lost, ruins are condemned to disappear sooner or later: rust never sleeps. In a handful of cases, it has been decided deliberately to leave derelict industrial structures as they are, to observe rust and invasive vegetation taking their inevitable destructive course. At Volkingen in the Saar, one of the first industrial sites to feature on UNESCO's list of world heritage, in 1994, some parts of the ironworks, now out of bounds to visitors, are left in this state of on-going decay. It was a solution recently put forward for a huge coal washing plant near Le Creusot, in France, but, in the end, a 'déconstruction patrimoniale' was preferred, a demolition operation taking care to record the site for posterity as it disappeared, in the manner of an archaeological excavation being covered up after having delivered its finds and information.

Converted industrial spaces

Many industrial structures that have lost their original productive functions are still preserved with new functions. The conversion of old industrial buildings to new uses is by no means a recent phenomenon, and, just as early industries could easily fit into existing built spaces, abandoned industrial spaces did not often remain unused for long. These early factory conversions may perhaps be described as 'vernacular', meaning to say that there was no deliberate intention to preserve a piece of heritage. Rather, it was simply a question of occupying a built space immediately available for a new use without the trouble and cost of new construction. Pit head winding towers converted into flats in the 1860s, the central machine shops of a coal-mining company transformed into a vast Leroy-Merlin DIY store in the early 1920s… these are two examples of such 'vernacular' conversions to be found in the Nord-Pas-de-Calais mining basin, inscribed as world heritage in 2012.

From the beginning of the 1980s, with the development throughout Europe and North America of a new sensibility to the interest and values of the industrial heritage, the conversion of old factories to new uses, what began to be called 'adaptive re-use', emerged as a practical way of preserving these factories, giving them a new economic 'raison d'être' whilst at the same time preserving their interest as records of past industrial activities, places with stories to tell. In the most thoughtful cases, efforts were made to interpret the industrial history of the place for its new users; mini-museums or interpretation anchor points might be centred on old machines, preserved in place and acquiring a new status as sculptures.

Apartments, schools and universities, hotels, office space, libraries, archive repositories, congress centres, supermarkets, concert halls, sports facilities, film studios, centres for start-up businesses, cultural centres of all descriptions… former industrial buildings have proved capable of accommodating a remarkable range of new uses. Indeed, only highly specific technical programmes – hospitals, prisons, airports… – cannot be fitted into former industrial buildings. During the nineteenth century, these buildings were generally the industrialist's principal investment, more than his machines. For new uses, the buildings consequently offer robust construction and materials of good quality. They can also offer volumes that new buildings could not possibly afford. In recent years, other advantages of the repurposing of former industrial buildings have come to be better appreciated, not least the environmental advantages. Preserving an old building and

giving it new uses can be understood as retrospective sustainable development, avoiding the heavier carbon footprint of demolition and new building, and avoiding too the urban upheaval that such new building often entails. Re-use, according to Philippe Robert, one of its expert practitioners in France, is like alternative medicine compared to radical surgery.

One frequent new use for an old industrial building is as a museum. In France, the former slaughter houses at Toulouse, dating from the 1820s and closed in 1988, now house a museum of modern and contemporary art. In Paris, the gare d'Orsay built for the 1900 exhibition, was transformed during the 1980s into a major museum for nineteenth-century art. In London, in one of the most famous examples of such conversions, the former Bankside power station, officially inaugurated by Queen Elizabeth II in 1959, has been transformed by the Swiss architects Herzog & De Meuron to accommodate the Tate Modern, opened by the same queen in the year 2000. These last two examples however pinpoint one of the ambiguities of such prestigious conversion projects. Both the broad arched train shed of the Paris railway station and the vast turbine hall of the London power station offer immense and exciting exhibition spaces that would certainly be considered as oversized and too expensive in a new building. But at the same time, neither site has retained any technical element apart from the building itself – a turbo-generator or a locomotive – to remind visitors of former uses. It is possible to visit the Orsay museum in Paris without realising that this was originally a mainline railway station. But, then again, does this matter?

Centrale Montemartini, Rome

Another power station, this time in Rome, offers another perspective. Inaugurated in 1913, it was the first publicly-owned electricity generating plant in Rome, named the Centrale Montemartini after one of its founders. Since 1997 it has been used as an archaeological museum displaying Greek and Roman sculptures, but at the same time retaining most of its remarkable technical equipment: boilers, gantry cranes and two huge diesel engines installed in 1933. The striking juxtaposition of antique marbles and monumental twentieth-century machines leaves no visitor indifferent and raises stimulating questions about museum discourse, about the emotions we expect from visiting museums and about the staging and interpretation both of classical sculpture and of technical history. This museum also offers a transition to my next category, the disused industrial site transformed into a museum of itself.

Transformed into a museum of itself

For 'friends' of the industrial heritage, one of the most favourable outcomes for a disused industrial site, particularly when the site in question retains its production machinery, is the transformation of the site into a museum. This is a solution, however, that cannot be applied everywhere. The public potentially interested in industrial and technical museums, although growing (we hope!), remains a relatively modest and specialised one. Museums of industry all require public or corporate financing (even the Louvre does finance itself from ticket sales and merchandising) and their economic viability does not depend only on the intrinsic interest of their collections: geographical location and accessibility are other key factors. And, if it is to attract people to come back for a second visit, a factory museum must be able to pursue new directions in research and renew its displays; it cannot rely exclusively on a permanent exhibition of old machinery.

Glass museum and workshop, Trélon, Nord

Nonetheless, some factories transformed into museums can be considered as successes. A few French examples here, followed by one from Greece. The Corderie Vallois, situated near Rouen in Normandy, was originally a water-powered cotton mill, erected in the 1820s. Towards the end of the nineteenth century, it was acquired by Jules Vallois who converted the site to manufacture ropes, cords and cables, many of which were used as transmission belts for local textile machines. The factory which, at its most prosperous, employed about forty people, closed in 1978 but all its late-nineteenth century machines were still in place with their shaft and belt transmissions running from a Poncelet type water wheel. The industrial museum was opened in 1994 and is a lasting success. For schoolchildren in particular, it offers a striking impression of a small-scale rural factory of the late nineteenth century, with all the machines in movement, still driven by the water wheel. It is a museum which adds authentic sounds and waterside and oily mechanical smells to the senses habitually mobilised in a museum visit. Trelon, in the north of France, near the border with Belgium, is a former glass works for bottle making which retains its kilns of 1885 and 1926 in a late-nineteenth-century hall, where there are also demonstrations of contemporary glass-blowing. At Saint-Félix in the Oise department to the north of Paris, you can visit a small rural brush-making factory which still uses its remarkable water wheels and transmissions and keeps its workshops more or less as left. At Cerdon, in the Ain department, another water-powered site, the factory-museum recently acquired by the local authorities demonstrates the manufacture of copper ware. Finally, on another scale and in a different country, Gazi, in Athens, only about a kilometre from the Acropolis, is at one and the same time a cultural venue for music and dance festivals and an exceptional site museum showing and explaining what is probably one of the last surviving gasworks in Europe, complete with its nineteenth-century retort houses, gas washing plant and gasholders.

Replicated industrial spaces

In order to preserve their parietal wall paintings, prehistoric caves such as the ones at Lascaux (Dordogne) or near Marseilles (Grotte Cosquer) cannot be visited by the general public and replica caves have been created for the appreciation of these exceptional sites. In the field of industrial heritage, replicated structures are rare but a parallel is to be found at certain mining sites where, for technical, security and economic reasons, visits to underground workings are out of the question, and replicated surface galleries have been built. At Oignies and at Alès these 'mines-témoins' as they are called were in fact created for training purposes, whilst elsewhere, at the historic mining centre of Lewarde, at the Saint-Etienne mining museum, for example, or at Tourve (Var), at the museum of bauxite mining, the galleries have been specially built to replicate underground working conditions and display the evolution of construction, transport, ventilation and extraction techniques.

In activity… but also a museum

The last category I wish to present is undoubtedly the one that is the most appealing and the most satisfactory for people like ourselves, the friends of the industrial heritage. It is the category of places of industrial production that are in activity, but where owners and managers, conscious of the historical, technical or architectural interest of their site, strive to reconcile the constraints of on-going industrial production with preserving their heritage and sharing it with the public. Some electricity generating power stations such as the Cusset hydroelectric power station, one of the most powerful in the world when it was opened in 1899 on a derivation of the Rhône near Lyons, can fall into this category.

The EDF (French electricity generating board) can open this site to visitors without any difficulty or risk.

Brush-making museum, Saint-Félix, Oise

In France, in general, the handful of such 'heritage factories', where visitors can observe different aspects and stages of industrial production, are sites producing traditional, up-market products where the visit generally comprises a passage through a gift shop and where the visit itself, promoting traditional know-how and, perhaps, traditional machines, is an element of corporate communication. A few examples here: the Castellane champagne factory at Epernay, with its sparklingly exuberant architecture and remarkable 66-metre-high water tower, already a striking advertising totem for the city and for passengers on the nearby railway, when it was built in the first years of the twentieth century; the Saint-Louis crystal glassworks, dating back to 1586, where the discovery of a purpose-built museum space and its collection of 2 000 pieces of crystal is completed by a visit, via an overhead walkway, through the workshops; the Fer à Cheval soap works at Marseilles, where the steamy production halls, with their nineteenth-century vats recently given historic monuments protection, are open for guided tours once a week. Two exceptional sites to conclude: The first is France's last nail manufacturer, the Rivierre factory at Creil, an industrial city 50 km to the north of Paris. This factory produces an incredibly broad variety of nails (2 800 references!) on machines which date, for the most part, from the late nineteenth century. Since 2008, guided tours of the workshops have been organised one day a week and at weekends. At

a human level, the director of the factory, Luc Kemp, underlines how important these visits are for the factory's twenty or so workers, who have new-found pride in their technical skills and are only too happy to share with visitors an appreciation of '*la beauté du geste industriel'*, the beauty of industrial work.

The last site I wish speak of is the Manufacture Bohin, the last factory in France to produce needles and pins. In splendid 1880s buildings set in the charming Normandy countryside, this factory has been acquired by the local authorities and is now managed as a museum, but a working museum, where the Bohin firm still manufactures its needles and pins which are exported throughout the world. The workshops here feature as an integral part of the visit, which presents not only the picturesque story of founder of the factory, Benjamin Bohin, but also the context of the local iron-working establishments, the industrial landscape of the river on which the factory is implanted and the different uses of the pins and needles made in the factory. The itinerary through the workshops brings the visitors as close as possible to the 27 distinct operations needed to make a needle, and allows them to converse with the workers and learn from them. Today, about half the factory's turnover comes from the sale of its products, the other half this intelligent form of industrial tourism.

Bohin needles and pins factory, Saint-Sulpice-sur-Risle, Orne

In 1995, before their inauguration as a museum, the Bohin buildings were given statutory protection under the terms of French legislation on historic monuments. Superimposed on the categories outlined above, and varying from one country to another, other categories could be identified in terms of statutory protection: 'classified' as a historic monument, 'inscribed' as a historic monument, scheduled, listed, labelled, designated, merits statutory protection, would have deserved statutory protection…

From stone to turbines: the industrial evolution of the Alto Paraná region seen through archaeological and historical research.

Mirtha Alfonso Monges

Archaeologist at MUSEO de ITAIPU – Tierra Guaraní. Paraguay.

This article's intent is to describe and highlight the industrial development of the Alto Paraná region, located in the southeastern part of Paraguay in the border with Brazil and Argentina.

The definition of industry implies the transformation of raw material into tools and general goods useful for the economic strategy of a specific human group within a determined period. Usually, when we imagine "industry" we see big machinery and buildings, so we tend to forget that this picture of industry first appears during the "industrial revolution", in the 18th and 19th century[1]. Before this time, there were already different types of industry, creation of products and transformation of raw material, but they were mainly associated with craft and not with mass production[2].

ITAIPU Binacional

[1] The Nizhny Tagil Charter for the Industrial Heritage, 2003

[2] Campagnol, G. 2011. Industrial Archaeology and Brazilian Industrial Heritage. Preservation Education & Research PER. 4. 1-18.

This is why, when we talk about industrial archaeology and its evolution in a determined period and for a specific society, it is important to take into account all prehistoric and historic periods, because not all cultures had the same social and material development.

Paraguay and specially the Alto Paraná region had a very peculiar industrial development, as we know it today, which started much later than in other parts of America, and was thoroughly defined by political and social changes. To understand the shifts and turns of this period, it is necessary to have a panoramic view at Paraguay´s early development.

Before the arrival of the European colonizers, the current territory of Alto Paraná had already been occupied for at least 8.000 years by nomadic hunters and gatherers, divided by the archaeology in three groups, based on their material culture. This period known as Paleolithic in Europe and Paleo-Indian in South American contexts, was differentiated by the manufacture and use of stone, bone and wooden tools, from which only the first are preserved in archaeological sites, with some exceptions for the last two. These stone stools were the basis for the economic development of the groups and essential for their survival, used mainly in the preparation of food and as weapons in the form of spears and arrow points. Evidence of these human groups known as Humaitá/Alto Paranaense, Umbú/Mocoreta and Eldoradense, can also be found in Argentina and Brazil[3]; the oldest evidence for the presence of this settlements in the actual Paraguayan territory were found in Alto Paraná during archaeological excavations in the 1970s, before and during the construction of the hydroelectric plant ITAIPU Binacional[4].

Around 2.000 B.P. a new group of settlers appeared on the territory: the proto Jê family[5]. They brought a new social and economic organization, characterized by sedentary settlements in pit houses, horticulture and the making of ceramic pots and vases; although hunting and gathering remained an important economic activity, incipient agriculture took a much meaningful role.

Ca. 1200 B.P., the Guaraní arrived to the region, presumably from the amazon basin of the Madeira River, moving north to south and subjugating other populations they found on their way. Their economy, mostly based on agriculture, for which they cleaned and burned great portions of the native forest, became essential to their way of life, supported by hunting and fishing (done by men) and gathering (a female activity). Their pottery was much more developed than the proto Jê, increasing in size, ornamentation and utility; among them, the big funerary vessels are prominent, for their use in the preparation of food and the ceremonial drink "*kayguy*", and then as mortuary vessels[6]. Pottery was essential to the Guaraní way of life, and was present in their mythology, daily life and rituals.

[3] MENGUIN, O. El Altoparanaense, 1955. 177 – 197
[4] FOGEL, G., 1979. Investigaciones históricas, socioculturales y arqueológicas del área de ITAIPU.
[5] NOELLI, F.; SOUZA, J., 2017. Novas perspectivas para a cartografia arqueológica Jê no Brasil meridional. Boletim do Museu Paraense Emílio Goeldi. Ciências Humanas, v. 12, n. 1, p. 57-84, jan.-abr. 2017
[6] BONOMO, M.; ANGRIZANI, R.; APOLINAIRE, E.; NOELLI, F., 2014. A model for the Guaraní expansion in the La Plata Basin and littoral zone of southern Brazil. Quaternary International 356, 54 – 73.

Guaraní and Je stone tools

Guaraní pottery – Funerary urn

Therefore, in these two periods, we see a dramatic change in the economic activities of the inhabitants, migrating from lithic industry, hunting and gathering to agriculture, although incipient, and the production of ceramics. Through this, the Guaraní were not a nomadic group anymore, but a sedentary one, although some periods of ecologically motivated migration were part of their mystic worldview, in the search for the land without evil or *yvy marane´y.*

This scenario drastically changes once more, around 1524, with the arrival of the first European explorer, the Portuguese Alejo García, the *de facto* discoverer of the current Paraguayan territory; with him a new and very important element is brought into the land: iron. Meetings with the natives required the exchange of courtesy gifts, during which knives, fishhooks, axes and similar iron artifacts took a prominent role. At this point, it is important to notice, that by the time the first Europeans arrive to the current Paraguayan territory, the Guaraní and other native groups did not know how to work and create tools out of metal.

The arrival of the Jesuit missionaries into the Alto Paraná territory first in 1619, and later in 1624 to establish a mission with the Guaraní, was intent to create a safe route and evangelization posts between the earlier founded southern Paraná and the northeastern Guairá reductions. Natividad de Nuestra Señora del Acaray, as the Jesuit mission was named, was a post that, although very well organized and populated, with a church, a school, and an orchard, as it is mentioned in the Annua letters[7], could not further develop into a town of sorts, because of the *bandeirante*[8] attacks in 1631, that started in the Guairá reductions, a period that is known today as the "Guairá exodus"[9]. The Guairá Indians and Spanish settlers were forced to migrate down the Paraná River and reached the Acaray mission, were they settled for almost a year. However, the menace of the *bandeirante* advances, forced both the Jesuit fathers and the Guaraní settlers abandon the Acaray reduction and flee south to the mission of Corpus Christi[10].

This context allows us to understand the change from the Guaraní agricultural self-sufficient system into the missionary work, which kept agriculture as a subsistence method, but introduced new tools to its practice, as well as structural changes to living and worship areas. The traces of this mission, whose remains were lost in the deep Alto Paraná jungle, were unearthed in the 1970s, through archaeological and historical research, and remain to this day an important research subject for the ITAIPU Museum. Rest of metal knives, fishhooks and nails were found, as well as adobe and cane, both used in the construction of habitation structures, as opposed to the typical Guaraní "*roga*", with walls made of wood and roofed with straw or palm leaves.

Another important aspect was the production and harvesting of yerba mate, a native plant that grew wild in the forest, whose leaves the Guaraní used for infusions with

[7] The Annua Letters (Cartas Annuas) were the yearly correspondence of the Jesuits, sent from their posts to their superiors in Asunción or Buenos Aires.

[8] Reduced Guaraní Indians were free of the mandatory service to the Spanish and Portuguese crown. The bandeirantes paulistas or mamelucos, were pirates and slavers from São Paulo and Rio Grande do Sul, who despite the prohibition attacked the Jesuit missions in order to enslave their settlers and take them to the main cities.

[9] MONTOYA, A. R., 1639. Conquista espiritual hecha por los religiosos de la Compañia de Iesus, en las prouincias del Paraguay, Parana, Vruguay, y Tape.

[10] FOGEL, G, 1999. Sociedad, Cultura y Dinámica Regional. 260 - 269

recreational and medicinal purposes. This plant both scandalized and intrigued the Jesuits, who first banned its consumption but then started planting, harvesting and exporting it themselves. The Alto Paraná jungle was rich in natural yerba mate plantations, and therefore, the establishment of new missions in the territory was made with the intent to secure the natural *yerbales* for the Jesuits, as well as for religious and strategic reasons.

After the *bandeirante* invasions, the situation changed for the Alto Paraná. While Asunción and the southern cities continued their development into urban and commercial centers, the Alto Paraná remained unoccupied. No cities were founded or colonization posts established for almost 200 years in the region. In 1811, Paraguay severed ties with Spain and achieved its independence. Through a succession of provisory and dictatorial governments, the yerba mate in the Alto Paraná remained a constant economic asset; expeditions were send to the region in order to harvest it and to establish a permanent post there. In 1844, Carlos Antonio López assumed the presidency of Paraguay as it first constitutional President and passes acts in 1843 and 1846 ordaining that all forests and *yerbales* become property of the Paraguayan state; a decree issued in 1848 also suppresses all indian villages, thus disbanding towns and settlements founded by the Jesuits in ancestral Guaraní territories, beginning the systematic extraction of timber and yerba mate, for its exportation[11].

This measures didn´t affect the Alto Paraná in the way that affected other towns; the eastern Paraguayan region had no colonial settlements but was very important to the government for its vast natural *yerbales.* Explorers and workers were send in order to establish extraction posts and the sporadic encounters between workers and Guaraní Indians living in the deep Alto Paraná forests were not so friendly. This situation forced the government in Asunción to devise a colonization plan for the region, offering lands and subsidies to the families adventurous enough to move into the territory. Some took the risk and moved temporally, but to no permanent success.

While the government in Asunción struggled to remain in control of the region, the rest of Paraguay was living an industrial revolution: railways, ships and machinery are bought and brought from England and France, along with technicians who came to train Paraguayan workers and supervise the building of factories and industrial establishments; a brand new iron foundry is built in La Rosada where weapons, machines and other goods were produced. The export of cotton, yerba mate and timber reach new levels thanks to the foundation and modernization of ports and shipments.

This optimistic scenario changes with the death of Carlos Antonio López in 1862. He is succeeded by his son, Francisco Solano López and three years later starts one of the most tragic episodes in modern history: the Triple Alliance War that confronted Argentina, Brazil and Uruguay against Paraguay for five years, until its end in 1870, leaving Paraguay devastated, with 90% of its male population and nearly 60% of its total population dead. Again, the Alto Paraná region remained untouched by the cruelty of the war; no battles were fought in its territory.

A decree issued in 1885 by the post war government in Asunción, with Bernardino Caballero, a war hero as President, determined the sale of all state-owned *yerbales* and

[11] TELESCA, I. Paraguay 1848: pueblo de indios y conformación del Estado.

forests. La Industrial Paraguaya S.A. (LIPSA), a Paraguayan – Argentinian company was one of the main buyers, acquiring the monopoly for the extraction of yerba mate and timber for 100 years[12]. Here is where the modern industrial development of the Alto Paraná begins, as well as its formal integration into the Paraguayan territory; towns, villages and ports emerge in the middle of the jungle: Tacurú Pucú, today known as Hernandarias, where the main port was installed, nearby the settlement of the late Jesuit mission Natividad de Nuestra Señora del Acaray, Puerto Presidente Franco and Itakyry, where the general administration of LIPSA was located.

The figure of the worker of the *yerbales,* known as Mensú[13], becomes relevant in popular culture. Slavery and ill treatment of the workers is denounced by the press, along with poor sanitary conditions and wages embezzlement by the companies.[14] The situation was aggravated due to the fact that LIPSA and other similar companies held a monopoly over the sale of essential articles, such as food, clothing and medicine; workers could only buy what they needed from the company´s storehouses to exorbitant prices, often through discount system, in which the acquired goods were discounted from the worker´s payment usually leaving him in debt due to the high prices. A significant change in the system is reported in the 1930s, after the Chaco War against Bolivia; many of the workers went to fight in the war and when they came back to their post, embolden by the victory and demanded better work and living conditions.

Mensu carrying yeba mate bundles

[12] GOMEZ, C., 2010. El Paraguay de la Post Guerra: 1870 – 1900.

[13] The word "mensú" comes from the term mensual or monthly, referring to the system of how salaries were paid to the workers.

[14] BARRET, R. "Lo que son los yerbales paraguayos", article from El Diario, 1908.

The exploitation of *yerbales* was a high profitable business, because of the cultural and social role of yerba mate consumption in in Paraguay, Brazil and Argentina. Infusions of crushed mate leaves are prepared with hot water and receive the name of *mate*; *tereré*, however is drunk with cold water adding other refreshing herbs to the mixture.

Machinery, tools and vehicles are imported from Europe and brought into the country by the port in Buenos Aires. The extracted timber rolls and yerba mate bundles were transported on the river in "jangadas", a system that consisted in tying logs of hard and soft wood tightly together and sending them down the river to the closest port; from then on, they were tied and carried into alzaprima carts, pulled by oxen. Later, motored carts were used.

By 1950, the territory granted to LIPSA included 2.647.727 ha, around 17% of the Paraguayan eastern region. Around 1960s, existences of yerba mate and timber in Alto Paraná started do decline due to the massive extraction. LIPSA started to sell its properties, partly to new landowners, some of them foreigners and partly back to the Paraguayan state.

Political uproar began again due to a centuries old conflict between Paraguay and Brazil regarding the Guairá Falls, leading to the mobilization of Brazilian troops and the occupation of the disputed territory between both countries. A diplomatic solution is reached in 1966 with the Yguasu Act; a mutual understanding that stopped all military attempts and laid the foundations to "the hydroelectric exploitation of the Paraná river as far as the Guairá falls"[15]

The ITAIPU treaty was signed in 1973, after several technical studies were undertaken on the upper course of the Paraná River, in order to find the most viable post on which the hydroelectric complex was to be build, and to evaluate the cultural, sanitary, demographic and environmental impact of the project.

ITAIPU Binacional, property of Brazil and Paraguay was officially created in 1975, year on which construction work on the chosen site started. More than 40.000 workers were employed in its construction. In 1981, the first of the current 20 generator units was installed, with energy production starting in November 5th 1982, thus becoming the world´s largest hydroelectric plant. This record was held until 2006, when the Three Gorges Dam, located in China, was completed. ITAIPU still remains the world´s largest generator of clean and renewable energy, breaking the record of 100.000.000 MWh generated in 2016.

Industrial development in Paraguay it's irrevocably linked to political and social changes, but modern industry can also become sustainable in many ways. ITAIPU supports several research and conservation programs for water management, biodiversity, cultural heritage, health, infrastructure and education. It provides not only the funds to other organizations that foster similar programs, but has created inside its own organization chart, units and facilities like museums, wildlife research centers, laboratories, and natural protected areas, all attended by highly capable professionals.

[15] Iguasu Treaty, 1966

Industrial heritage is a new concept in Paraguay, its importance it´s starting to be understood by society, but it is still linked to painful past episodes and thus regarded as irrelevant for our culture by the broad public. A lot of research and valorization is still to be done for the public to understand its relevance, and to value real knowledge against the popular beliefs and myths.

The ITAIPU Museum is in charge of telling this story, the regional evolution and development, as well as ITAIPU´s own history since its creation to this day. Industrial development in the Alto Paraná region continues, becoming the real engine of Paraguay and Brazil´s own evolution. It is our work, as a museum, as researchers and cultural promoters, to unveil and communicate its past in order to project a better future.

BIBLIOGRAPHY

BARRET, R. "Lo que son los yerbales paraguayos", article from El Diario, 1908.

BONOMO, M.; ANGRIZANI, R.; APOLINAIRE, E.; NOELLI, F. A model for the Guaraní expansion in the La Plata Basin and littoral zone of southern Brazil. Quaternary International 356, 54 – 73. 2014

CAMPAGNOL, Gabriela. 2011. Industrial Archaeology and Brazilian Industrial Heritage. Preservation Education & Research PER. Volume four. 2010

FOGEL, Gerardo. Investigaciones históricas, socioculturales y arqueológicas del área de ITAIPU. 1979.

FOGEL, Gerardo. Sociedad, Cultura y Dinámica Regional. 260 – 269. 1999.

GLAUSER, Marcos. Extranjerización del territorio paraguayo. 2009

GOMEZ, Carlos. El Paraguay de la Post Guerra: 1870 – 1900. 2010

MENGUIN, Osvaldo. El Altoparanaense. 1955.

MONTOYA, A. R., Conquista espiritual hecha por los religiosos de la Compañia de Iesus, en las prouincias del Paraguay, Parana, Vruguay, y Tape. 1639

NOELLI, F.; SOUZA, J., 2017. Novas perspectivas para a cartografia arqueológica Jê no Brasil meridional. Boletim do Museu Paraense Emílio Goeldi. Ciências Humanas, v. 12, n. 1, p. 57-84, jan.-abr. 2017

RUYER, Claudio. Annua de la nueva Reducción Ntra. Sra. de la Natividad del Acaray. 1624

SUAREZ, Rafael and SANTOS M. Guaciara. Cazadores- recolectores tempranos, supervivencia de fauna del Pleistoceno (*Equus Sp. y Glyptodon Sp.*) y tecnología lítica durante el Holoceno temprano en la frontera Uruguay – Brasil. Revista de Arqueología, Volume 23 – N.2-20-39 – 2010.

TELESCA, I. Paraguay 1848: pueblo de indios y conformación del Estado. IX Taller: "Paraguay desde las Ciencias Sociales". 2016

THE NIZHNY TAGIL CHARTER for the Industrial Heritage. 2003

Genesis pottery production in Azerbaijan based on the archaeological collection of the National Museum of History of Azerbaijan

Makhfuza Zeynalova

Deputy Director, Chief Curator of the National Museum of History of Azerbaijan.

Traditional crafts and skills are one of the forms of artistic expression of folk arts. For centuries, passed down from generation to generation, they have formed the historical, spiritual, and aesthetic experiences of people, as well as spiritual and moral foundations of human development.

The importance and significance of the research is also defined by fact that there is an urgent need to enhance the protection of the cultural heritage, as well as revival of the traditional ethnic culture, and its further development. Over time, pottery making has become one of the oldest and most widespread of the decorative arts in Azerbaijan for its simplicity of use and through its convenient handling, usability in different spheres of life.

The primary objective of this ongoing study is to investigate and examine the development process and emergence of pottery crafts, identify specificity of types and ornamentation of pottery ceramics in its different stages.

The history of pottery in Azerbaijan dates back to over 10,000 years ago, during which this type of handicrafts pottery seems to have undergone a process of adaptation and modification in terms of production techniques, shapes, ornamentation, which particularly depended upon purpose and application of items. The collection of pottery of the National Museum of History of Azerbaijan is the largest in terms of the number of items (museum's archeological and ethnographic funds). The pottery collection represents all historical periods of human activity on the territory of Azerbaijan starting from the Neolithic age until the present day. Household items, implements of labor, tools, pottery objects used in rituals and cults, were mainly products of local craftsmen. The main factor of multifaceted pottery development in this region was the presence of raw material sources - clay deposits. Over 80 different types of clay have been unearthed within Mingechevir, and a large number of clay objects was characterized by an extraordinarily high ceramic value, being used not only as construction material, but also as high-grade ceramics (2, c.10).

The oldest samples of the Neolithic and Eneolithic period were rude, irregularly shaped, thick-walled, unburnt molded utensils. Designs being executed in clay, either in relief or as incised ornaments on large vessels pertaining to the Eneolithic period were found on the territory of the Kur-Araz, between two rivers, and its analogies could be traced to the Early Bronze culture (4, c.30). It should be noted that the Bronze age in Azerbaijan is represented by three archaeological cultures - the Early Bronze - the Kur-Araz, the Middle-Nakhchivan, the Late Bronze age - Khodjaly-Kedabek, while crafts became increasingly specialized and crafts market became increasingly diverse. Each culture had its own techniques, shape, color of clay and ornamentation.

The Kur-Araz archeological culture existed approximately between 4,000 BC and 2,200 BC (twenty-two hundred) on the territory of the North Caucasus, Transcaucasia and in the neighboring regions of the Middle East (the Caucasus, Eastern Turkey and Northern Iran). Culture –bearers lived in fortified dwellings and its walls were built of mud bricks. So, in the Kur-Araz settlements similar forms of residential architecture are observed in the form of circular-plan buildings with Eneolithic monuments (8), which testify to the tradition of continuity. The main occupation in this period was agriculture and cattle breeding. During this period the great majority of population was engaged in crop farming and animal husbandry.

On the territory of the Kur-Araz cultural, archaeologists have unearthed numerous artifacts proving the existence of the cult of a bull, which symbolized strength and fertility. These included clay vessels with handles resembling the nostrils of a bull, and numerous clay zoomorphic figures, among which cattle were the most common and prevalent.

In the meantime, extraordinary ornaments are found on the vessels of the reviewed period, and some of the scholars noticed the resemblance of the ornament to pictographic script. One of the reasons therefore lies on the fact that the ornament is devoid of rhythm and repeatability of elements, which allows us to judge more than just the decorative designation of its constituent characters. Kuro-Araz culture further significantly impacted the subsequent Trielian culture (nearly 2, 200 - 1, 500 BC) (5, c. 56-58).

The Middle Bronze age on the territory of Azerbaijan is represented by the Nakhichevan archaeological culture (II millennium BC.), explored and studied on the basis of the monuments of Kultepe I, Kultepe II, etc. (*3,* c. 9).A large number of exquisite monochrome, as well as polychrome glazed ceramics were unearthed in the ground burials, stone boxes and barrows of the reviewed period. Of particular interest are pitchers with a handle and tea-pots.

The late Bronze Age and the Early Iron Age are represented by Khodjaly - Kedabek archaeological culture (13th-7th centuries BC) (11). Besides bronze weapons and adornments, large amount of pottery was unearthed in ground burials and barrows - black and gray glazed ceramics of unique shapes and decor, being a valuable historical source for studying the tangible, intangible and spiritual history of Azerbaijan. Of particular interest are zoomorphic vessels, which, besides its household purpose, had a decorative and ritual character. There are unique boot-shaped vessels with curved tops (2, c.50-51), the shape of which is testifying that in the 1st millennium BC people in this region had already been making leather shoes. This type of Caucasian boots existed in Azerbaijan until the beginning of the 20th century AD. The other interesting artifacts are clay vessels and stamps with solar symbols attesting to the beliefs of the ancient people. Decoration applied to the pottery objects used techniques of inlay, and fancy pattern in the form of deep cuts was filled with inserts of white paste.

Similar ceramic products with ornamental motifs in the form of wavy lines, circles, triangles, which were discovered mainly in ancient Ganja, were made until the era of antiquity (14, c. 70-72).

Pottery art of the Caucasian Albania was also reflected in burial rituals in the form of jar graves burial, pertaining to the 4th century BC - 8th century AD. Initially the dead were buried in large earthenware jars in a heavily contorted position on the side, together with burial implements containing household items, metal objects (bronze and iron tools and weapons, bronze, silver and gold jewelry), wood, stone, clay, glass and paste, etc. This culture belonged to sedentary farming dwellers that were also engaged in cattle breeding, hunting, fishing and crafts.

In the Hellenistic era new type of pottery products were introduced into the craft, such as rhytons and vessels with images of mythological unicorns, etc. During this period, along with geometric ornaments on pottery, famous craftsmen made their own stamps on ceramics. Craftsmen, potters from Caucasian Albania also produced a large number of objects of art ceramics, distinguished by high technique of design, richness of forms and ornamentation. Thus, excavations of recent years show that roofing tiles were made in Albania in the Hellenistic era (7, c 91). Zoomorphic and anthropomorphic decorative vessels are distinguished by specific grace, beauty and originality (13, c.9-14).

The aesthetic priorities of that period were reflected in the highly artistic objects of the Yaloylu-Tepe archaeological culture, which were in the form of globular shaped vessels, with a three-petal corolla, elongated drape in the form of a pelican beak and one ribbon-shaped handle, a black and red baking vase on one and three legs (6, 92). Burials and ceramics of this culture were unearthed throughout the territory of Caucasian Albania. Thereafter, according to the area of its extension, established as a result of archaeological explorations, it is possible to trace the ethnic affiliation of the population, territory, as well as even the country's borders (10, 91).

Therefore, raised on ancient local roots, distinguished by a wide variety of forms, this ceramics have much in common with the ceramics of Asia Minor, the Eastern Mediterranean and other regions (12, 48,100).

The manufacture of toys was also coincided with the old pottery production. Hand-molded toys of red clay - animals, whistles, dices and other objects are astonishing by the softness of the outlines and the ingenuity of the masters.

Clay also served as raw material for the re-creation of deities - idols of female forms, with distinct signs of reproductive characteristics. The navel was especially decorated the chest and neck were covered with adornments.

However, these objects of burial decoration are not only the sources of beliefs and worldview, but also evidence of taste preferences in female fancy decoration, as well as the source of jewelry art of ancient Azerbaijan.

The bright colored glazed ceramics is typical for the era of the developed Middle Ages. Pottery objects of green-brown color were decorated with human's images, animals, and calligraphic inscriptions made in Arabic script which served not only the pattern, but also contained data about the manufacturer.

There are various types of ornamentation and decoration of vessels, bowls, dishes including bright patterns of coating materials, tiles covering the facades of buildings of this period. Glazed ceramic products were widespread, especially among the urban

residents, because besides the utilitarian purpose, painted vessels were part of the interior decoration in the Azerbaijani homes. Furthermore, glazed ceramics embodied a large art culture of the local people.

It should be noted, that history of glazed ceramics in various areas of the medieval world, has common ground, as well as general features with general trends showing further progress, representing a unique historical and artistic phenomenon. Therefore, these artifacts are evidences of cultural links and countries' and people's interaction in the Middle Ages (15, 139-159).

Of particular interest are the spheroconical vessels, in terms of shape and application, which were discovered in the Middle Ages, not only in Azerbaijan but also in Egypt, West Asia and Asia Minor, Iran and Central Asia, the North Caucasus, the Crimea and the Volga region.

The main characteristic and typical feature of these vessels is spherical upper and conical lower parts. The common shape of the lower half of the cone is completed by variations of the bottom: elongated, pointed, rounded, flat, etc. Spherocones have a neck in the form of a small hole with a diameter of 3-8 mm, designed to hermetically block it. Spheroconical vessels were made from fine-grained refractory clay. The outer surface of the vessels was made according to different techniques; most of these objects were decorated with overhead and stamped patterns. With completely smooth and glossy surface, the vessels were often covered with marks, symbols, inscriptions and imitations of inscriptions. The purpose of the sphereconical vessels has not been resolved yet.

The complete disclosure of the purpose of the object is more complicated by the fact that besides its direct application and purpose, these items continued to serve the same purpose in everyday life afterwards as well (1, 24-29).

The underground pottery water pipes of the 11th-12th centuries, found during archaeological excavations near cities such as Ganja and Gabala, are the evidence of high urban culture. In this period Azerbaijani towns were distinguished by a higher level of accomplishment. In these towns, constructions such as underground vaulted tunnels with water pipes were discovered. The elements of the water pipe were clay pipes with a diameter of 12 to 20 cm and in length up to 60 cm with a socket at one end, in which was inserted the narrow end of the other pipe. The water supply network extended to the center of the city with a slope and provided a pressure in order to supply water to the houses. Furthermore, towns had a solid and broad network of clay water pipes that supplied people with spring water (9, 20-21).

Pottery traditions are traced in the subsequent period in the history of Azerbaijan. Figurative ritual vessels, which were primarily created to perform various religious rituals, continued to serve the same purpose in everyday life in subsequent periods as well. Pitchers, bowls, flasks, and etc., were used since ancient times and continued to serve the same purpose in everyday life afterwards as well.

Thus, according to the materials collection of the National Museum of History of Azerbaijan we can trace all stages of the development of techniques, forms, and ornamentation of pottery, proving the identity and recognizable features of local products.

In addition, more complex vessel structures and pottery techniques demonstrate long-duration and deliberate processing of its adaptation for use in everyday life.

So, various forms of ceramics and terms used to describe the pottery products, as well as the decoration applied to it that reached our time, attest to the higher level of welfare and recreation needs and aesthetic tastes of our ancestors.

Thus, historically, pottery has always been one of the oldest and most widespread crafts in Azerbaijan from the oldest Neolithic layer to this day, which reveals the traditions of genetic continuity. At the same time, the presence of various (technologically, typologically and ornamentally) ceramic collections, testify to the development of this type of craft in conjunction with trade and craft centers of the East.

BIBLIOGRAPHY

ABBASOVA E.I., NURADDINOVA A.R. Sferokonicheskiye sosudi v fondax istoriko-krayevedcheskoqo muzeya Kurdamirskoqo rayona Azerbaydjanskoy respubliki\ Ycheniye zapiski Kazanskoqo universiteta, t.156, k.3.

ASLANOV Q.M., VAIDOV R.M., IONNE Q.I. Drevniy Minqechaur. Izd-vo AN Azetrb.SSR, Baku, 1959.

AKHMEDOV Q.M., BABAYEV I.A. Arxeologicheskiye kulturi Azerbaydjana. / Baku, 1986

AXUNDOV D.A. Arxitektura drevneqo i ranne-srednevekovoqo Azerbaydjana. / Baku, 1986

ISMAYLOV Q.S. Ornamentasiya keramiki drevneqo poseleniya Baba-Dervish I yeye vzaimosvyazi s eneoliticheskimi pamyatnikami Zakavkazya. / Izd-vo AN Azreb.SSR, 1965

ISMIZADE O.Sh. Yaloylutepinskaya kultura. Baku. 1956

Istoriya Azerbaydjana / Redactor I. Aliyev. Baku, Elm, 1995.

KUSHNARYOVA K.X. Epoxa bronzi Kavkaza I Sredney Azii. Ranyaya I srednyaya bronza Kavkaza. M., Nauka, 1994. PDF

MAMEDZADE K.M. Stroitelnoye iskusstvo Azerbaydjana. Baku, Elm, 1983

OSMANOV F. Istoriya I kultura Kavkazskoy Albanii. IV v. do n.e. – III v.n.e. (na osnovanii arxeologicheskix materialov. / Baku, 2006

PIOTROVSKIY B.B. Arxeologiya Zakavkazya s drevneyshix vremen do I tis.do n.e. / Leninqrad, 1949. PDF

RASULZADE M.M. Torqovo-ekonomicheskiye i kulturniye svyazi Kavkazskoy Albanii s antichnim I ellinisticheskim mirom: IV v. do n.e. – III v.n.e. / Baku, 2008.

SHARIFOV D. Yaloylutepinskaya arxeologicheskaya kultura (III-I vv. do n.e.). Materiali Azqosmuzeya, vip.I, Baku, 1927.

EMINBEYLI V.X., MAMEDOV E.T. Drevniye tradisiyi qoncharnoqo remesla Gandji kak vajniy istochnik// Istoriya I arxeologiya: materiali III mejdunarodnoy nauchnoy konfer. (S-Peterburq, dek. 2015). – SPb, 2015.

YAKOBSON A.L. Srednevekovaya polivnaya keramika kak istoricheskoye yavleniye. Vizantiyskiy vremennik, t.39. – M., Nauka, 1978

Industrial Heritage of the past on the modern Landscape of Qala village (on the base of funds of Qala State Historical – Ethnographic Reserve).

Malahat Farajova

Director of Qala State Historical –Ethnographic Reserve

"The study of the past can only be constructed by archaeological approaches to the material record of the past grounded in social theory, relevant Ethnography and an understanding of fundamental human processes."

Andree Rosenfeld

Historically, the Absheron Peninsula has consisted of 32 villages. The archaeological, epigraphic and numismatic studies carried out here show that Qala village attracts more attention from its scientific and practical significance. The caves, kurgans, temples, remains of fire found in this area cover the period from the second half of the III millennium to the first half of the second millennium BC.

The historical part of Qala settlement was established as Qala State Historical Ethnographic Reserve in 1988. It was reconstructed by Heyday Aliyev Foundation and opened to the public in 2008. 228 architectural and archaeological monuments from Bronze Age until medieval time are reserved here. The oldest found monument is ancient settlement that dated back to III-II millennium B.C. There are five mosques, three bathhouses, and four reservoirs, remains of castle, mausoleum, tombs and dwellings (houses) among the architectural monuments in the territory of Qala village. There are also monuments of industrial heritage (pottery and blacksmiths yards, underground water supplies, salt extraction, and oil derricks).

Pottery and blacksmiths yards

In medieval period, the pottery and blacksmiths yards turned to workshops. There were five districts in Qala Village in middle ages: Tarakama, Haji Ramadan, Balaverdi, Tatlar, Chambarakend.

Many carpets were weaved in each house and they were known with their names. The experts proved that the main source of Absheron carpets was Amirjan and Qala villages.

One of the blacksmith workshops that belong to Middle Ages in Qala village situated at the crossing of Tarakama and Haji Ramadan district. This workshop was restored in the middle of 20th century.

Underground water-supplies

Drinking water line was drawn by underground water-supply wells from Khasha-Khuna, not far from Gala. The water was delivered with ceramic pipes. The ceramic pipes is covered with limestone stones to protect the pipes from being damaged..

At the beginning of the 19th century, drinking water line was drawn by underground water-supply wells to Qala from the place called Khasha-xuna, which was not too far from here. It was necessary to draw underground water supple from Qurat gardens- 150-200 meters north of this area to Khasha-khuna gardens in order watering here. Ovdans- water reservoirs, wells, underground water supply drawn from Khasha-khuna were used for covering the population's water demand. These water wells were situated in front of the mosques

People drew underground water supply from different sources or used ovdans- reservoirs and wells, which was characteristic in Absheron at that period in order to cover population's water need, also in agriculture, and in cattle breeding.

People used methods like winding, windmills, traction, and crankcase for extracting water from the well. Underground water supply system arranged beginning from Balaverdi district –the upper part of the village – crossing from Chamabarakend and Haji Ramadan districts and ending in Tarakama district- the lower part of the village- through the territory of Qala. Underground water supply was systematic. Wells were drilled sloppy in order to ensure that water flow easily.

People used wells for extracting water. The rest of the water was collected to a big reservoir near Bayramali bathhouse in Tarakam district (nation's bath-house, repaired by a person by name Bayramali in 1881 according to the epigraphic writing), the other to an empty place-puddle forward the wells on the road side. People used the water of reservoir to wash their clothes. They brought their animals to the puddle for watering them.

Salt extraction

Archaeological and historical information, as well as ethnographic materials, indicate that Qala was one of the oldest industry and trading centers. Salt, livestock products, etc. in trade of transit took the main place. Also, 72 defenses found in the Qala reserve prove it. Qala was well known for its salty lake. The salt extracted from this lake was considered as the best quality for its taste and whiteness. European traveller- Kempfer who visited Qala village in 17 century noted that this salt differ for it whiteness and not being bitter. Salt production has also played an important role in the employment of Absheron population, as well as in Baku's trade with other regions of Azerbaijan, in commodity exchange and in commodity-trade relations with foreign countries. The history of salt extraction and salt production in this territory relates to a period before Christ. The salt residues found in Turkan village during archaeological prove it.

An English traveller- Shupov who visited this area said: "*There are two salty lake around Baku. People extract salt from these lakes with the help of natural climate*".

Masudi, a medieval Arab author, notes that salt plays an important role in the foreign trade of Baku. Abd al-Rashid al-Bakuvi wrote that there were homegrown salt and very good quality salt was produced for sale with other countries in Baku. At that time, the high quality Absheron salt was exported mainly to the Caspian countries, Iran, Byzantium, Russia, Central Asia, Iraq, Syria, India, China and other countries. Marshall Biberstein, who was in Baku in 1796, wrote that, salt brought a lot of income to Baku as oil. In the second half of the XVIII - the beginning of the XIX century, in every year income of the Baku khanate from oil and salt was about 40,000 manats. Farm labours

were engaged for extracting salt. Most salt lakes were at the disposal of the state treasury.

In the 30's of the 19th century, every summer about 30000 calves were collected from Absheron salt lakes. The length of Qala salty lake was 1 verst 125 sec and the contour was 3 verst 300 sec. The salt extracted from Qala salt lake differs with it quality, whiteness and not being bitter. This salt was filled to the sacks and brought with caravans and besides using in the household.

The legend has spread among local people about salt as it so the local khan aimed to lease the salt lake for profit. However, suddenly the lake covered the bloodstream. Seeing this, the khan changed his decision. Therefore, people used the same salt without any payment as before. This salt was used for treatment among people widely ancient times.

Oil derrick

On the bank of Shor lake-in the south-west of Qala village oil derricks of Benckendorf-one of the important oil fields are situated. Concerning A. Benckendorf, he received patent for his declared invention "Bore for an air-to-water drilling" from Department of trade and manufacturing of the Ministry of Finance. In 1835, he became the head of the administration of the second Insurance Society of Russia.

The firm possessed 74 wells of which 54 were production wells from them. The sites of the firm were located in Balakhany, Sabunchy and Surakhany. In the crafts there were 3 mechanic-repair workshops. The "Benkendorf and Co", along with other petroleum producers, built its own gas pipeline with a diameter of 6 inches in Balakhany-Sabunchy district.

In 1889 on Benkendor's field was arranged electric lighting. Not only building and drillings, but also craft itself were lit. In addition, one more not without an interesting touches to the portrait of the "Benkendorf and Co" trading house.

By 1892 year, 8 oil companies concluded with the insurance companies' private insurance for their employees and trade workers. One of these 8 firms was Benkendorf's firm. The priests came to "Benkendorf and Co" Trading House to conduct services for all comers, regardless of their place of work. The note from the "Caspian" newspaper in 1892: "*Passover on the mining*" describes how solemnly celebrated Passover on Benkendor's fields.

"Tables were prepared; workers were going to their baths. In the evening, the table at the club was perfectly ready. The toasts were raised, the zurna was played, and the songs sang and danced. The workers were enthusiastic, generous and gratifying. Meanwhile, tea and various sweets were distributed, and at 12 o'clock, everyone went home. The following evening, tables were set up for Muslim workers on the occasion of the month of Ramadan".

The "Caspian" newspaper reported that there was a strong fire on October 21, 1891 on fields of "Benkendorf and Co" in which stewing all workers selflessly took part. Local population of Qala witnessed heavy fire on fields.

In the nineteenth century a bridge was built over the lake connecting the village of Qala to Benkendorf. During the 80th years, the bridge was destroyed for security reasons.
In 1889, "Caspian" newspaper writes about the company as "the most responsive of local oil firms". Bekendorf took land from local residents of the settlement of the Qala for rent and local residents provided them with goods for their living quarters.

It should be noted that the fragments of old industrial buildings were preserved on the south-west coast of the Shor Lake, which were apparently used for oil storage and buildings oil production.

"Benckendorf and Co" company engaged in charity and was a shareholder in the construction of the children's tuberculosis sanatorium in Buzovna and the children's hospital in Baku.

The funds of Qala State Historical-Ethnographic Reserve let us to reconstruct the landscape of the industrial heritage of the past of Qala village.

Local Volunteers acting as Community Curators: the Rupel Experience

Bruno DE CORTE

Introduction

The Rupel Region is a post-industrial area in Belgium. This region is located next to the river Rupel and covers approximately 46 square kilometers. The five communities have a global population exceeding 58,000 inhabitants.

The landscape was radically reshaped as a result of clay extraction activities and the brick manufacturing process. The kilns, the adjacent drying sheds and the huge chimneys dominated the landscape of the region. So the entire physiognomy of the area is related to one single industry: brickmaking.

The area extends at the north of the river Rupel and comprises the villages of Boom, Hemiksem, Niel, Rumst and Schelle. Next to the River is a geographical questa called the "Boom Clay". This layer was formed in the Oligocene. The Rupel clay is an ideal raw material for the making of bricks. The river Rupel, connected to the river Scheldt (which leads to Antwerp) was the transport factor. Bricks were hard to transport by land, barges were preferred. For this purpose a typical boat type was developed, the "Stonebarge" ("Steenschuit").

Rise and Fall of the Brickmaking Industry in the Rupel Region

Brickmaking started in the Middle Ages with the monks of the St Bernard's Abbey in Hemiksem. In the beginning there were ambulant field kilns, of which we have not found traces so far. In 1358 there was already a permanent kiln. The spreading happened gradually in small scale local units, following the rich clay deposit at the right bank of the river.

Wars, occupations, fire disasters and demolitions caused a decline of the abbey and its related brickmaking in the second half of the 16th century.

A major breakthrough was the Rupel-Brussels Canal in 1550-74. The spreading of the brickmaking over other communities happened gradually in small scale local units, following the rich clay deposit at the right bank of the river. The market for the industry reached now from Brussels in the South till the Antwerp region in the North.

Centuries later another expansion came with opening in 1832 of the Brussels-Charleroi Canal, which made the industrious Walloon region accessible for the stone barges. At that time the Rupel industry became a player on national level.

A big expansion came in 1859 as a result of political and military factors. In that year the great entrenched camp at Antwerp was finally taken in hand, following the lessons the Belgian military staff learned from the Siege of Sebastopol in the Crimean War. This was the start of an nationwide continuous building program of polygonal fortifications, led by General Brialmont. Till the 1880's these large fortresses were made in masonry. This phenomenon kept the demand for bricks constantly very high.

This led towards the emergence of new brick makers in the North and West of the country from 1874 on. These new factories were mechanized from the beginning whereas the Rupel factories kept to traditional methods. The Rupel brickworks were family enterprises which were reluctant to go up in bigger capital structures. The landscape was dominated by these concentrations of kilns. The border of the river Rupel became a wood of chimneys. Very typical was also the adjacent housing phenomenon, which added to the fragmentation of the landscape.

Post-war periods and the reconstruction of devastated areas had a benign influence on the Rupel region, where brickmaking reached its summit in 1957. In the sixties mechanization took command which led to a raise of unemployment. An acceleration of the decline was the Oil Crisis of 1973-74: between October *1973* and January 1974 world oil prices quadrupled, putting an end to decades of cheap energy. As brickmaking depends a lot on energy (also coal prices went up), the fate of the smaller factories was sealed. Between 1960 and 1990 approximately 75% of the brick workers in the Rupel area lost their jobs. From 42 the number of factories went down to five (1991, nowadays only one single enterprise is left). Also related economic branches such as the shipbuilding went down. People started commuting or emigrating to Brussels and Antwerp, housing was abandoned. The population census reached an absolutely low in 1989. The Rupel region became an economical depressed area.

The big empty clay pits gave the region the nickname of the "Moon landscape". The industrial buildings became derelict. To the public, the image of the region was increasingly becoming negative.

In addition there came ecological crime. The clay pits were ideal places to dump toxic waste and governmental control was sloppy. Within a few years, the Rupel area was becoming the trash can not only of the nation but also of adjacent countries. Many scandals occurred.

Economic Aid and Structural Problems

The first reaction to the industrial paralysis was short-sighted: local authorities and the government wanted to fill up the numerous clay pits in an attempt to clean up the old industry and to have terrains where new industries could settle. From 1969 on permissions were given to owners of empty pits for this purpose without any control on the substances. These politics gave ground to strong reaction of the public.

In the eighties, the national government had to deal with the decline of several large industries in Belgium of much bigger size such as steelmaking, shipbuilding, textile industry, coalmining …So there came only little help from the central government. The local authorities were overwhelmed by the economic setbacks. The Rupel Region was truly abandoned, becoming a wasteland with a high endemic unemployment. The local communities were too poor to develop their own initiatives.

In matters of economic renewal the central government started to react in the 80's but the various initiatives for economic regeneration were financially too weak, too short and mostly uncoordinated.

The intergovernmental body between the national government (i.c. Flanders, Belgium is a federal country) and municipalities is the Province (similar to the "County" in the UK), in this case the Province of Antwerp. In October 1981 Governor Andries Kinsbergen stressed the big structural problems of the region. Since then the Province of Antwerp was a key player in the Region. In 1986 the Province bought the huge clay pit "De Schorre" to rebuild it as a recreational space. Nowadays it houses the famous rock festival "Tomorrowland".

The most successful program of the central government was the establishment of an independent Ecological Agency (OVAM, in 1981), which was very concerned about the toxic waste scandals in the Rupel region and quickly proceeded to action. The development of natural reserves and the regeneration of the landscape was since then quite successful. A derelict clay pit – if not polluted - transforms itself automatically into a biotope for extraordinary specimens of nature. So a part of the industrial landscape became recreational zone.

The main problem of the Rupel Region is that it is in fact a too small depressed area and the surrounding areas are wealthy. To qualify for the big EU structural funds (European Regional Development Fund/ERDF), regions must have one of the three objectives set by the EU. These are: to help under-developed regions (with a GDP less than 75% of the EU average); adapting to major economic changes, such as declining rural areas; and helping those with special educational or employment needs.

In the meanwhile the Policy of the European changed a lot in a positive sense, also there is more attention for the cultural heritage. But getting funding from the EU is still a long and difficult administrative process.

To summarize governmental action in the period 1980-2010, there were several basic flaws:

- Funding was over relatively short periods
- Planning was oriented towards a "tabula rasa" of the industrial past of the region, to create a "green belt" where new industries could settle down
- In the beginning there was no interest for the built heritage, so an important part was lost.

On the local level there is the fact that the five municipalities are acting as separate units. The history of all these smaller brickworks was local and so is the "mémoire collective". Worse even is that the neglecting attitude of the governmental bodies led to the destruction of a majority of structures. In Boom, where the grassroots movement was the strongest, a large scale entity was kept: "Noeveren". It would be logic to concentrate everything there but this would cause frustration among the other 4 municipalities.

The Province of Antwerp, in an attempt to stimulate cooperation, created a focal meeting point "Heritage House" ("Erfgoed- en Landschapshuis", ELAH) in 2013. The center wanted to boost the cooperation between the five municipalities of the Rupel Region. Moreover, under supervision of the Province the five municipalities signed in August 2014 an agreement to cooperate in museum matters.

To support local initiatives you really need a holistic plan for the whole region, combining all forces. We had to wait until 2010 for a regional strategic plan to be conceived to enhance the image of the region, including all elements from transport infrastructure till nature regeneration.

Alas, within the framework of the federalization of Belgium the role the Province is diminishing. In 2018 the Province will lose its competence in cultural affairs. This a serious backlash for the development of a heritage policy.

The big issue in regional planning matters is to find a functional balance between future economic developments and the building heritage, the museums, the landscape as well as the current nature.

Popular reaction, grassroots movements and "community curators"

In the seventies the region became an example of ecological crime and gave the impression of a being a "total loss".

To counter this situation a strong grassroots movement started everywhere in the whole region. The development of natural reserves and regeneration of the landscape turned into the biggest ecological struggle in Post-War Belgium. Today, some 100 hectares of former clay pits have been preserved as recreational and ecological zones.

The people who reacted to the deterioration of their region very fast understood that the old sites were in fact valuable heritage. In 1975 a first proposal was introduced to protect some of the built heritage. Also first steps were undertaken to collect objects. Other local initiatives followed, and at the end of the 80's the region had several small clay-related museums run by volunteers. These initiatives were as small candles of hope in a dark night of recession.

Already in 1972 in Rumst the Mayor of the municipality was pushed by locals to create an initiative to collect the relicts of the fast disappearing industry, which became the local museum "Rupelklei". In 1984 in Boom two museums were created: "'t Geleeg" and the "Ecomuseum en Archief van de Boomse Baksteen"(EMABB), in 2005 in Niel the "Niels Erfgoed Archief" (NEA) was founded to collect printed, written and also oral testimonials of the past. Nevertheless, it took ten years of administrative struggle to put the first buildings on the official Heritage List.

The interesting feature of this popular movement was the holistic approach. People were not only concerned about nature and the industrial heritage, but also wanted to preserve skills such as the shipbuilding which was closely connected to the brick making industry.

It is a considerable achievement but nothing is conserved for eternity. To preserve these natural reserves and built heritage, holistic planning and public support are needed.
But only in recent times government finally realized that the key problem of a depressed area is in fact its image. When there is no hope left, nobody will invest. Volunteers are pioneers, but they cannot do everything.

The force of local initiatives is their embedding in the local community. The weakness is that exactly this embedding makes cooperation on a regional level problematic.

Attempts of the Province to merge the various museums into one new initiative proved unsuccessful, because they did not take into account the local feelings and because the collections one wanted to bring together are owned by the local volunteers. Merging various museums would lead to the irrevocable loss of objects, because often the same items are collected in every museum.

The authorities stimulated the registration of the collections, but the application they supplied was not web based. This did not lead to a better inter-local collaboration and moreover the complexity of the input procedure frustrated the volunteers.
The weaknesses of community curators are the ageing of the volunteers and the fact that the way they preserve is not always optimal.

An additional problem is the growing pressure to have the heritage incorporated into tourism. The positive side of this is that tourism generates income. On the other side, it asks for a dedication from the local volunteer and this at the cost of the maintenance of buildings and collections.

Another problem is the Belgian state reform. As from 1st January the Flemish provinces lose all responsibilities in the field of cultural heritage. So governmental support will be temporarily a problem.

Conclusions
What can be learned from this story? The Rupel case is a good example of cooperation of volunteers in an extremely difficult environment, a region which I would describe as "total loss" at a single moment. The balance is positive but we could have done more if not that much time had been lost on topdown planning. But finally, after many years, "topdown" slowly meets "grassroots".

Although there are many insecurities for the future, the positive effect of the community curators on the preservation of the industrial heritage can hardly be underestimated.
Local community curators are a gift to the political leaders. Community curators are pillars of a civic society and deserve more attention and support.

BIBLIOGRAPHY

DE CORTE B., La fornace di Boom in Belgio - un ecomuseo per rivitalizzare l'antica regione industriale del Rupel (in Italian), in: Scuolaofficina, periodico di cultura tecnica, June issue, Casa dell'innovazione e del patrimonio industriale/Bologna 1988, p.9-11.
De Rupelstreek. Samen schrijven we ons verhaal, Antwerpen 2013 (Action plan of the Province of Antwerp)
Kaderplan 'kleinstedelijk gebied en ontginningsgebied Boom-Rumst', Eindrapport, Antwerpen 2014 (Spatial analysis of the region of Boom by the Province of Antwerp)
WILLEMS R., Grootste afvalschandaal in Vlaanderen? 20 jaar strijd in de Rupelstreek (in Dutch), Berchem 1993 (about the ecological scandals of the Rupel region)

Intangible Industrial Heritage: The Collections of Audio Interfaces and Transport at the Museum of Portable Sound

John Kannenberg

Introduction

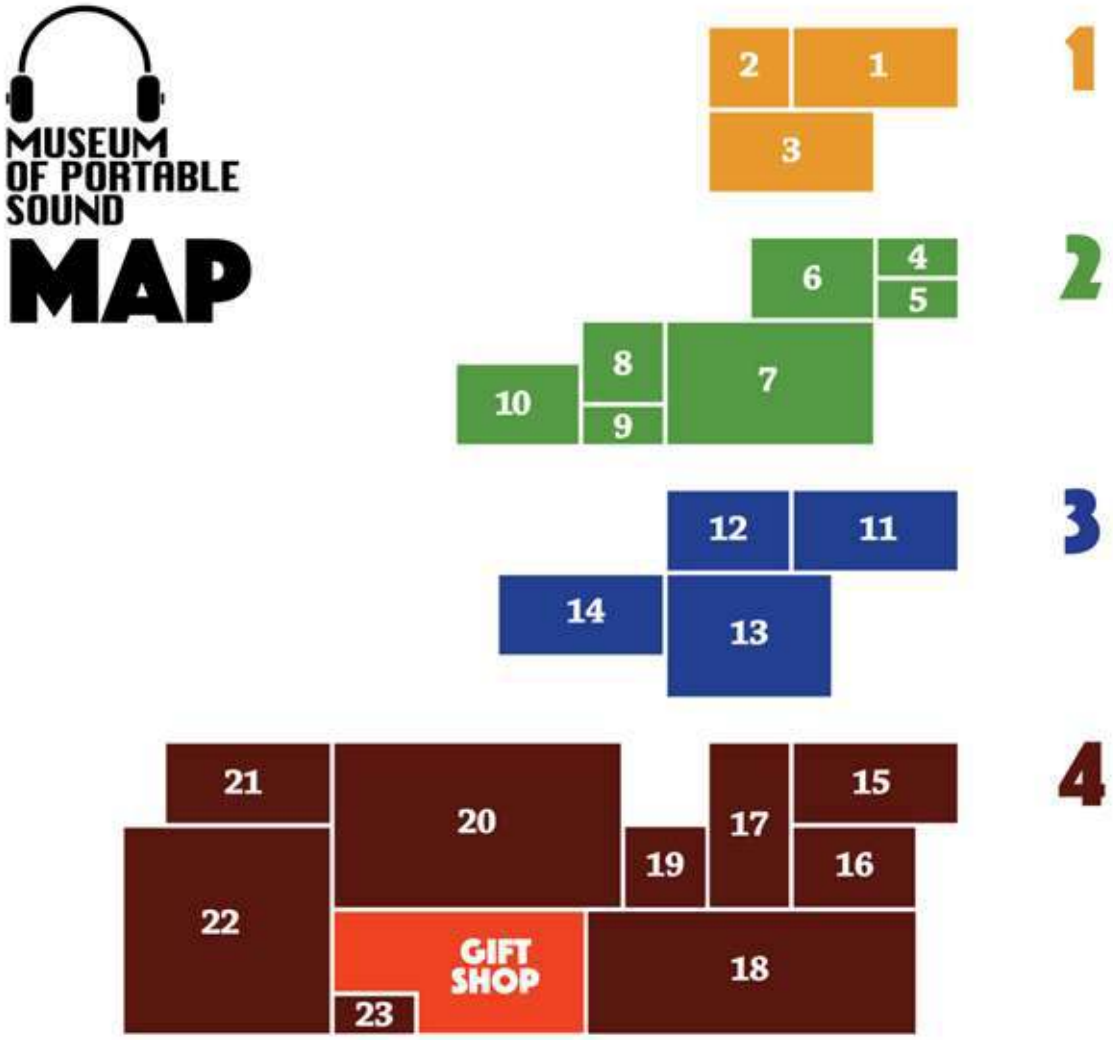
The Museum of Portable Sound (website: <https://museumofportablesound.com/>) is an artist's museum I established in London on 11 November 2015. As the primary focus of my current artistic research practice, the Museum of Portable Sound (hereafter referred to as 'MOPS') has become an experimental laboratory via which I have conducted tests relating to the display of sounds as objects of culture within a museum context. Part research lab, part cultural institution, and part performance art project, MOPS displays its collections of digital sound recordings on a single mobile phone, which I carry with me at all times – the sounds are not distributed online, and there is no mobile app available. Visitors must make an appointment to meet me in order to experience the collections; when we meet, I provide them with the mobile phone containing the sound files as well as a map of the MOPS galleries, and an extensive printed *Gallery Guide* containing the object labels and didactic texts that would normally be found on the walls of a conventional museum. After a brief induction session, visitors are then free to listen to the museum as long as they wish (see Figure 1). In its current form, the MOPS Permanent Collection Galleries contain 200 sound recordings (or *sound objects* as they will be referred to hereafter) with a combined duration of five hours.

Once a visitor has completed their listening session, they often engage me in a conversation that usually covers their experience of MOPS, their experience at other museums, and their experience of sound in their daily life. In this way, MOPS acts as a portable 'contact zone' – a term originally coined by James Clifford in 1997 and recently eloquently described by anthropologist Haidy Geismar as "*a material mediator between collections and ideas, people and things, modes of analysis and forms of experience. It is a container of knowledge and a provoker of questions*". (2018: 29)

While the form and experience of MOPS raises a number of questions regarding the changing definition of what may be considered a museum in the 21st century, those questions remain outside the scope of this paper. It is the sound objects on display within MOPS, and some of the taxonomies by which they have been organised, that constitute the focus of this article.

Left: A typical Museum of Portable Sound setup while waiting for a visitor inside the Café in the Crypt, St Martin-in-the-Fields church, London, UK, 27 March 2018 (Photo by author.) *Right:* The author and a visitor meeting in the café inside University of Westminster on Regent Street, London, 28 November 2016 (Photo by a helpful anonymous bystander.)

The sound objects in the MOPS Permanent Collection Galleries consist primarily of recordings that I have captured myself in my practice as a *phonographer*, or field recordist, since the late 1990s up to the present day. Many of the sound objects on display represent (as, indeed, audio recordings are documents that quite literally *present again*) the sounds of post-industrial technology. Using sound objects displayed in two of the MOPS exhibition galleries, this paper will seek to establish the notion of what I refer to as *intangible industrial heritage* that, for my purposes as an artist working with sound, includes the sounds of post-industrial culture.



1: NATURAL HISTORY

1. Animals
2. Insects
3. Weather & Water

2: SCIENCE & TECHNOLOGY

4. Laboratories & Medicine
5. Acoustics
6. Recording History
7. Audio Interfaces
8. Glitches
9. 20th Century Audio Equipment
10. 21st Century Audio Equipment

3: SPACE & ARCHITECTURE

11. Construction, Exteriors & Tours
12. Doors, Windows & Fixtures
13. Plumbing, Heating & Cooling
14. Interiors

4: ART & CULTURE

15. Art Processes
16. Archaeology
17. Bells
18. Transport
19. Food
20. Rituals & Events
21. Libraries & Archives
22. Museums
23. Exhibitions of Sound

The Map provided to Museum of Portable Sound visitors, showing the museum's four major topic areas and the galleries they contain. The sounds are organised onto the MOPS mobile phone as albums inside the mobile's built-in music app. (Map designed by author.)

The galleries that make up MOPS are divided into four general topic categories; these categories are further subdivided into a total of 23 'gallery spaces' (see Figure 2), which exist inside the music app on the phone as 'albums' (e.g. one gallery = one album). These taxonomies provide the overall structure by which MOPS presents its sound objects, and are evocative of similar taxonomies employed by what has come to be referred to as 'universal museums' (i.e. those that aim to collect the culture of the entire world – see Huxley 2003; Curtis 2012; Duncan and Wallach 2012; and a critique of the term as a false 21st century construct in Hicks 2018). The sound objects on display in MOPS are rarely isolated recordings of a single sound-generating subject; rather, they often contain layers of multiple sounds, yet a specific sound within the recording may be highlighted by the object label in the *Gallery Guide*. Some may define these types of recordings as *soundscapes* – 'any acoustic field of study' according to R. Murray Schafer, the term's most famous proponent (1994: 8), or 'an auditory or aural landscape' (Thompson 2002: 1). However, for my own work, I find the term soundscape problematic, as it was '…shaped by a relationship to recording, reproduction, and western art music concert tradition' (Sterne 2013: 190) rather than anthropological or museological traditions. Therefore, I choose to regard the MOPS recordings as representing *sounds in their cultural contexts*; my sound recordings, and my method of displaying them in a museum context, are about the *connections between concurrent sounds*, not a type of 'sonic landscape' such that the term soundscape implies. By collecting and presenting recordings that do not isolate a single sound but rather represent sounds within their original acoustic environments, my field recording and curatorial practices work together to explore why multiple sounds coexist in their original contexts – an attempt at merging acoustic and museological authenticity. I would argue that these contextual sound recordings, combined with their categorisation within the MOPS taxonomies, result in the establishment of the above-mentioned concept of intangible industrial heritage, which the case studies below will elaborate upon.

The Sounds of Industrial Heritage: Listening to Objects

In the past decade, a movement has developed amongst some philosophers known as *object-oriented ontology*. First coined by philosopher Levi Bryant in 2009, this complex and multi-faceted area of thought seeks to not only redefine what may constitute an object, but also to encourage the idea that objects are not defined by human-imposed interpretations. In his 2011 book *The Democracy of Objects*, Bryant seeks to 'think the being of objects unshackled from the gaze of humans in their being for-themselves' (19); or to put it in simpler terms, Bryant prefers to think of 'subjectless objects' that are not defined solely by the perceptions of human beings. While I do not place myself in the same philosophical camp as the object-oriented ontologists, this new emphasis on 'the rights of objects' does seem to reflect my own curatorial desire to more fully study the sensory lives of objects, as well as my own suggestion that sounds themselves (or recordings of such sounds) should be considered objects within a museum context (Kannenberg 2017). It is through this preoccupation with the concept of sounds as museum objects that I have come to study post-industrial sounds and, consequently, sounds related to industrial heritage.

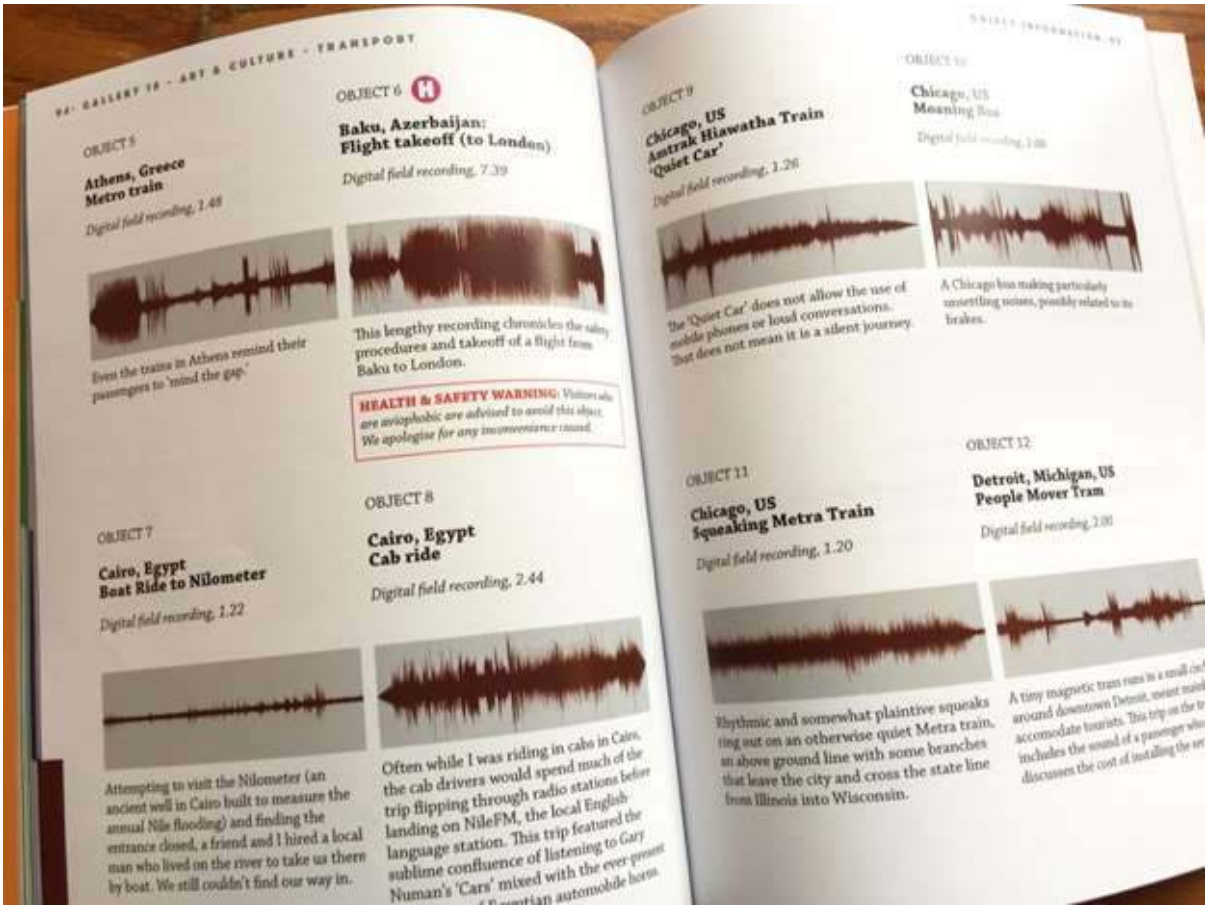
Industrial heritage as a topic area aligns closely with my museum's aims of investigating what a 'universal museum' of contemporary experience might focus on: 'Of the "cultural goods" that modern societies aim to sustain for their future well-being, few are more universal than industrial heritage' (Douet, 2013: 1). As with most museological concepts

used to define what is and is not considered worthy of being declared cultural heritage, the accepted concept of industrial heritage focuses on physical objects rather than the sounds they make. This makes sense when considering physical remains that date back to the beginning of the Industrial Revolution, the historical starting point of industrial heritage's domain, since it can be inherently difficult or impossible to operate machinery from this era that would have made sound, and few if any recordings might exist of machinery from that time period. However, as time passes and the purview of what is meant to be preserved as industrial heritage comes closer to the present, the physical remains of industry are not only functional, they can be easily documented in their working modes via audio and video recording. Indeed, the sounds generated by machines of many types during the Industrial Revolution have been responsible for massive cultural shifts: the birth of soundproofing (Picker 2003: 41); the ritual and 'unifying experience' of families across countries simultaneously listening to the radio (Hilmes 2012: 352); and electroacoustic music in symphony halls and 'talking pictures' at the cinema (Thompson 2002: 229-294) are merely a handful of examples. Museums concerned with industrial heritage such as the Science Museum in London hold collections of countless machines whose sounds help define the way humans interact with them; these sounds become integrated into daily life and have significant positive or negative impacts upon those who have no choice but to listen to them day in and day out. However, when these objects are displayed, they are non-functional and thereby non-sounding – leaving a significant gap in the presentation of how these machines impacted upon human culture.

Sound Objects As Intangible Industrial Heritage: Street Crossing Signals and Public Transport

So how do humans interact with post-industrial sounds in their daily life? What follows are case studies behind the curation of two collections within the Museum of Portable Sound that make comparisons between similar mechanical sounds across multiple cities. The first, Gallery 18: Transport (see Figure 3) features sound objects that document public transport systems of various types in a variety of cities. The second, Gallery 7: Audio Interfaces (see), contains a selection of my collected recordings of the sounds made by audio traffic signals – electronic sounds triggered at crosswalks in order to assist the visually impaired in knowing when it is safe to cross the street.

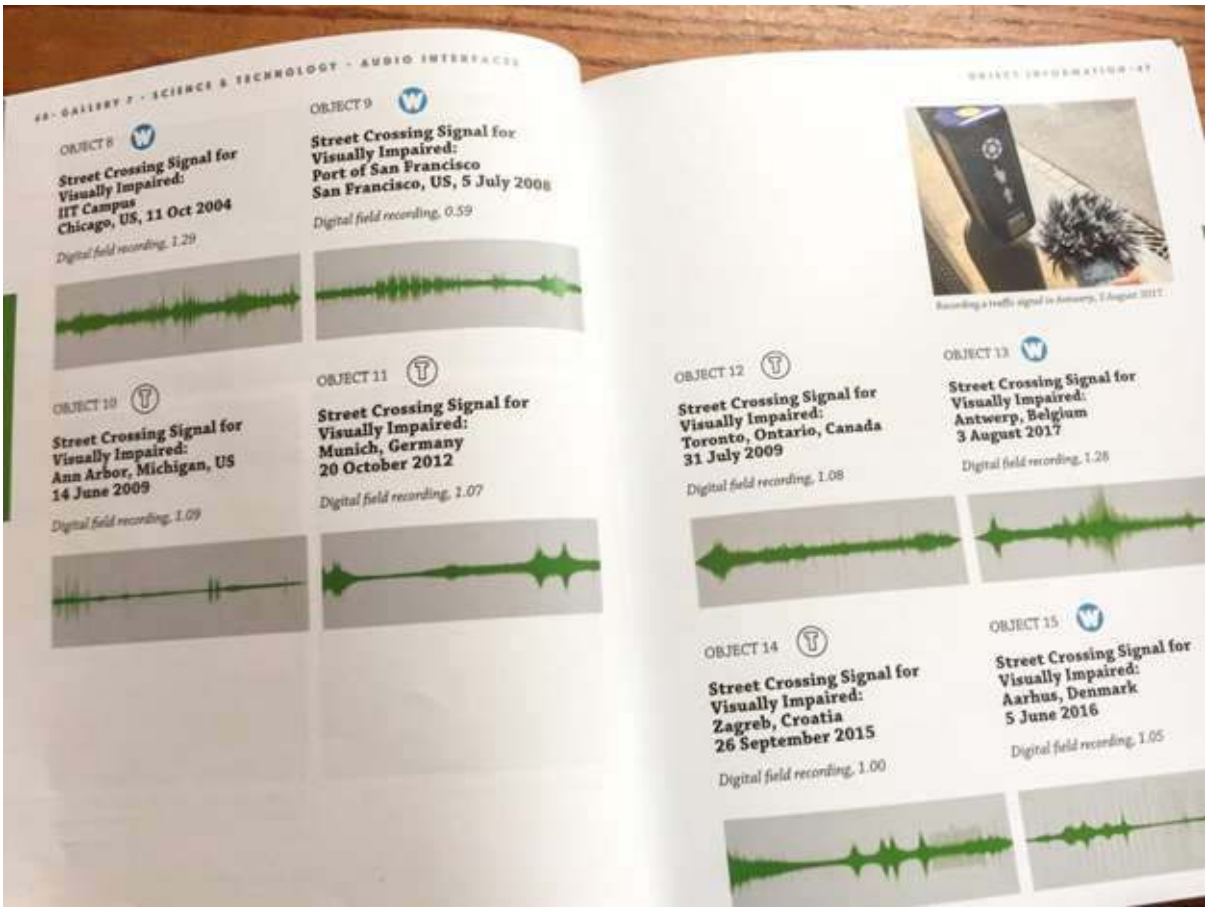
These collections are primarily artistic collections that, through their long-term accretion, have begun to share a commonality with an anthropological study; however, I do not view them as scientific collections, but rather as the output of a creative practice. If their collection was a purely scientific exercise, I would have crafted a hypothesis to prove, then would have collected sounds in order to either prove or disprove the hypothesis. Instead, the collection is organic and based upon my own travels – I rarely travel to specifically record sounds, but when I encounter them, I make sure to document them. It is an intuitive practice rather than a scientific one, similar to other such creative projects of visual collection and classification as *Semáforos*, an ongoing video project begun in 1995 by the Belgian-born, Mexico-based artist Francis Alÿs <http://francisalys.com/semaforos/>.



An excerpt from the Museum of Portable Sound's *Gallery Guide* depicting a portion of Gallery 18, Transport. (Photo by author.)

In this project, Alÿs collects photographs and video of the iconographic indicators for walking displayed on street lights in cities around the world. They are presented as a simple collection, in no apparent order, stripped of all context but the name of the city in which they were documented.

While not intended to act as a museum installation, Alÿs' video displays a similar notion of intuitive collection and careful documentation that I have attempted with the MOPS recordings; similarly, my displays play with the notion of appearing to be scientific classification through their presentation (providing provenance, corresponding waveform images, and other didactic information). Yet the displays of the two collections I will discuss below are inconsistent: e.g., the crosswalk signals include their date of collection, and are numbered in a seemingly random order not by date of acquisition, geographic region, or any other noticeable classification system; while the transport recordings are presented in alphabetical order by name of city collected, with no date of acquisition provided. Depending on the visitor, these inconsistencies in display techniques begin to become little games to be puzzled out – *why are these things in this order? If I listen to them in a different order, what will that do to how I experience them? Am I doing this wrong?* Inconsistencies of this type occur throughout the exhibition strategies of the Museum of Portable Sound, barely noticeable but, once noticed, become fodder for discussion with me during a visit. The inconsistencies in the MOPS exhibition strategies are most often intentional, devised to act as a parody of the often inscrutable methods audiences tend to perceive (or simply fabricate) behind why museums do the things they do.



An excerpt from the Museum of Portable Sound's *Gallery Guide* depicting a portion of Gallery 7, Audio Interfaces. (Photo by author.)

Through the examples below, I hope to demonstrate that both these sound types – the transport sounds and crosswalk signals – function as representations of expanded notions of industrial heritage and intangible culture. These multiple identities or states-of-being-culture are one of the primary motivations for the particular exhibition strategies I have pursued when curating the content of the MOPS galleries: selecting content in an attempt to present sound recordings not just as aesthetic curiosities, but also as collected, categorised, and museologically resonant examples of sounds as objects of culture. By listening to multiple instances of like-intended machine sounds from different cities and countries, I believe it becomes clear that these sounds, once noticed, are significant events within the sensory experiences of the local people who regularly hear them. As such, I view them as examples of intangible culture that should be preserved for a future when undoubtedly new technologies and cultural practices will replace all of these machines, or possibly even make the motivations behind their invention and use obsolete.

Case Study 1: Sounds of Transport at the Museum of Portable Sound

There are 28 sound objects related to public transport in Gallery 18, the MOPS Transport gallery (for the complete listing, please see the PDF version of the MOPS *Gallery Guide* at <https://museumofportablesound.com/plan-your-visit/gallery-guide/>). Although the sound objects could have been sub-divided by type, within the Gallery itself they are presented in alphabetical order by city name. This was a conceit developed for the initial version of this gallery when it held far fewer sound objects, and has been carried through

to the gallery's current incarnation. Having completed the below analysis, it now feels the gallery could be much improved by presenting these sounds in grouped typological categories, which will be implemented when the Permanent Collection Galleries are next updated.

In keeping with the spirit of MOPS as primarily a record of my own experiences rather than an attempt at presenting ideal 'specimens', these recordings are neither the most interesting sounds available to be collected, nor are they presented in a manner to suggest they could or should be compared scientifically – hence my initial reason for presenting them within the Gallery in a seemingly random order controlled by alphabetisation. For the purposes of analysis of the collection and curatorial strategies at work behind their display, however, I will discuss them as a series of nine typological subgroups: (1) *Inter-city Trains,* (2) *Intra-city Trains,* (3) *City Trams,* (4) *City Buses,* (5) *Personal Street Transport,* (6) *Water Transport,* (7) *Air Transport,* (8) *Tourism Transport,* and (9) *Mechanisms of Transport.*

Subgroup 1: Inter-city Trains

Object 1. Alexandria, Egypt: Train To Cairo, 2010
Object 9. Chicago, US: Amtrak Hiawatha Train, Quiet Car, 2010
Object 23. Speyer, Germany: Train to Karlsruhe, 2012

Each of the above examples is a train traveling direct between two cities, on a return trip to the location I was currently calling 'home'. Each train sounds unique, even though all three examples were recorded during times the trains were particularly quiet: Object 1 was recorded early in the morning, Object 9 was a car specifically designated as a 'Quiet Car', and Object 23 was a late night return from a day trip.

Subgroup 2: Intra-city Trains

Object 5. Athens, Greece: Metro train, 2011
Object 11. Chicago, US: Squeaking Metra Train, 2008
Object 18. Paris: Metro Train to Montmarte, 2012
Object 20. San Francisco, US: BART train to 24th street, 2008
Object 25. Toronto, Canada: Subway, Museum Station, 2009

These objects represent train systems that solely serve the inhabitants of a single city; all operate underground save for Object 11, the Chicago Metra train. Again, due to the intrinsic mechanical sounds of each train, plus the sound of their announcement systems, these trains are easily identifiable with a corresponding location, placing the listener immediately in the sound recording's city of origin.

Subgroup 3: City Trams

Object 2. Amsterdam, NL: Tram To Rijksmuseum, 2010
Object 12. Detroit, Michigan, US: People Mover tram, 2009
Object 14. Lisbon, Portugal: Night tram, 2015
Object 16. Minneapolis, Minnesota, US: Tram Approaching, 2008
Object 22. San Francisco, US: Cable car, 2008
Object 24. Strasbourg, France: Tram, 2012

Much like Type 2 above, these recordings are intra-city systems, but are run via electricity on tracks built into city streets that share the road with automobile traffic. The outlier in this group is Object 14, due to its late night provenance as well as the changing face of Lisbon's public transit. As Lisbon's tourist economy expands, more and more tourists have begun to flood the public tram system. Their lack of knowledge of local customs has made tram travel more inconvenient for the local population, and some tram drivers such as this one have taken to drastic measures in order to preserve their own sanity: in this recording, the tram driver has masking-taped a portable radio to the dashboard of the tram and has chosen to play Brazilian dance music.

Subgroup 4: City Buses

Object 3. Ann Arbor, US: Number 9 Bus, 2009
Object 10. Chicago, US: Moaning Bus, 2008

These recordings do not present buses in their best light, nor are they particularly iconic examples of the sounds of public buses. They are both from the United States, so their use as scientific representatives of a broad scope of bus sounds from around the world is null. Object 3 is simply an average-sounding trip on a bus I often road while living in Ann Arbor, while Object 10 was a particularly strange sounding bus that in no way represents the Chicago Transit System's bus services. Yet in terms of listening to this gallery's objects from start to finish, they provide transitions from one type of transport to another and break the monotony of listening to trains. As such, their inclusion was approached similarly to the contents of a mixtape, where their acoustic quality serves as a sort of 'sonic sorbet' (or 'phonographic palate cleanser'), along the way while still adhering to the Gallery's main topic.

Subgroup 5: Personal Street Transport

Object 8. Cairo, Egypt: Cab ride, 2010
Object 15. Milwaukee, WI, US: Harley-Davidson Motorcycles, 2007
Object 27. Warsaw, Poland: Horse-drawn carriages, 2017

This subgroup covers the private arena of urban transport, the sounds of modes of transport that carry only one or a small group of people from place to place and are either privately owned or individually hired. Object 8 was originally included primarily because of the pop music radio station that was also playing in the cab at the time, and I was pleased by the odd juxtaposition of capturing the sound of Gary Numan's 'Cars' emerging from a taxi cab radio surrounded by the sounds of Cairo. Object 15 represents the American tendency to fetishise personal transport: it is a recording of Harley Davidson motorcycles made during the annual 'Harley Fest' event in the city where the Harley Davidson motorcycle was invented. Object 27 represents a form of transport that was once commonplace in urban areas and now exists primarily as both a luxury and a curiosity.

Subgroup 6: Water Transport

Object 4. Ann Arbor, US: Paddle Boat, Gallup Park, 2010
Object 7. Cairo, Egypt: Boat Ride To Nilometer, 2010
Object 19. Pelee Island, Ontario, Canada: Ferry boat, 2010
Object 26. Venice, Italy: Boat in a canal, 2014

Object 4 is a recreational form of water transport, available when the seasons permit it in the cold Michigan climate. Object 7 was captured as the result of a friend of mine (and guide in Cairo for the day) hiring a local man's personal boat to see if it was possible to travel with it inside the ancient Nilometer, an architectural structure built on the Nile in order to keep track of its annual flooding in the days before the Aswan High Dam, since the structure itself was locked at the time of our visit. The boat was not an official tourist boat and its pilot knew we would not be able to enter the Nilometer, but took our money anyway. The other recordings in this subgroup represent more public forms of water transport, with Object 26 being the sole exception since it may have been a private boat; however, boat travel in Venice's canals is more analogous to road-based intra-city travel.

Subgroup 7: Air Transport

Object 6. Baku, Azerbaijan: Flight to London takeoff, 2017

This object holds the distinction of having the longest duration of any sound currently in the Museum's Permanent Collection Galleries: at 7 minutes and 39 seconds, it poses a challenge to visitors with short attention spans. It is also the only object currently on display in MOPS accompanied by a health and safety warning in the *Gallery Guide* (94), as this extended recording of the flight crew preparations for the takeoff of a passenger jet could potentially trigger aviophobic museum visitors. I believe this recording also disproves R. Murray **Schafer**'s assertion that 'No sound contains less interesting information than that of an airplane' (**1969: 58**).

Subgroup 8: Tourism Transport

Object 13. Karlsruhe, Germany: Steam Train, Schloss Grounds, 2012
Object 28. Zagreb, Croatia: Funicular, 2015

These objects have been included mostly because they function as curiosities. Object 13's train is a tiny replica of a steam train that transports visitors (mostly children and their parents) around the grounds of the Karlsruhe Schloss, the city's castle. Object 28 is a funicular, a specialised train designed to traverse the steep incline of a mountain; as such it is not inherently a transport solely designed for tourism, but in this particular funicular's case that is most certainly one of its primary functions, judging by the driver's repeated boasts (in English) that this funicular is 'the shortest in all of Europe.'

Subgroup 9: Mechanisms of Transport

Object 17. Paris: Escalator at St Lazare train station, 2012
Object 21. San Francisco, US: Cable car underground cable, 2008

These recordings represent mechanical sounds not made by the primary mode of transport associated with their sources, but nonetheless serve vital functions in relation to the movement of people via public transport: a slightly wobbly escalator in a Paris Metro station, and the sound of the underground cable responsible for keeping a San Francisco cable car on its track, recorded via an open access hatch in the pavement nearby. These sounds are integral to the experience of these modes of transport; regular commuters using these systems would notice the sound of the faulty escalator and also notice its disappearance once repaired; a local commuter would also be familiar with the sound of the cable mechanism issuing forth from the pavement. These may merely be

mechanical sounds, but they are the sounds of systems related to the transport of people (or in the case of the faulty escalator, the result of the breakdown of such a system).

Case Study 2: Audio Interface Sounds at the Museum of Portable Sound

MOPS Gallery 7: Audio Interfaces, contains a subgroup made up of eight examples of street crossing signals for the visually impaired, each from a different city. Each recording has been edited to last approximately one minute, in order to achieve the best balance between duration, information, and engagement with a MOPS visitor's attention. The similar running time also helps visitors in making comparisons between them. Below is a brief description of each example sound object.

Object 8. IIT Campus, Chicago, US, 11 October 2004

This crosswalk was the first example I ever recorded; it caught my attention at the time because the intersection was quiet while I was there, and the electronic chirping sounds appeared to be echoing off the surrounding buildings. I made several recordings at the time, trying to isolate the sound of the signals from the sounds of traffic or pedestrians. It soon became apparent that this was impossible, so I gave up trying and focused on obtaining a recording as free from wind noise as possible.

Object 9. Port of San Francisco, San Francisco, US, 5 July 2008

This recording features a crossing signal that is a combination of beeps (indicating the presence of the crosswalk) and a grinding tone (indicating when it is safe to cross). Besides the obvious presence of traffic, a street musician plays percussion at an 'island' in the middle of the rather large crosswalk.

Object 10. Ann Arbor, Michigan, US, 14 June 2009

This signal uses beeps similar to those in Object 5 above; however, the beeps play at two speeds, with the faster speed indicating it is safe to cross. In combination with this, a voiceover also chants when the 'walk' sign is on, and a countdown from ten indicates that time is running out. The unedited recording in my archives also includes the voice saying the name of the street being crossed, in this case 'Huron'.

Object 11. Munich, Germany, 20 October 2012

This signal uses beeps loud enough to be heard on both sides of the street simultaneously regardless of traffic noise level, captured in this recording as one beep per stereo channel accomplished by standing partially in traffic to hold the microphone at the proper angle. The beeps never change speed, pitch, or timbre, only playing when it is safe to cross.

Object 12. Toronto, Ontario, Canada, 31 July 2009

This crosswalk uses electronic whistling tones that sound vaguely bird-like in the resting mode (indicating the crosswalk's presence) and then switches to a double-beep similar to the Munich system when it is safe to cross. Notably, this is the same system and sounds that appears in the above recording at the Illinois Institute of Technology in Chicago, in

2002, as well as a crosswalk I lived near in Milwaukee, Wisconsin, United States before I began making field recordings. Due to the three cities' geographical closeness, this would indicate the presence of localised standardisation that I have yet to find evidence of between any other cities.

Object 13. Antwerp, Belgium, 3 August 2017

This signal uses an analog ticking sound at two speeds: slow for wait, fast for walk. It is similar in speed and timbre to the Zagreb system below, yet appears to be fully analog in nature rather than electronic or synthesised.

Object 14. Zagreb, Croatia 26 September 2015

This signal uses two different sounds to indicate opposite sides of a street: an electronically generated click on one side, and a beep on the other. When it is safe to cross the road, the sounds on either side of the street quicken their speed in unison, and the difference in the tones aids the perception of how far across the street the pedestrian has crossed as the sound shifts from one side to the other.

Object 15. Aarhus, Denmark, 5 June 2016

This recording captures primarily one side of a crosswalk; due to traffic, the opposite side of the street's tones is difficult to hear, but occasionally become audible for a few brief seconds. This system uses the same tone on either side of the street, but the sound itself is a curious blend of a click and a beep, a hybrid between clicks and beeps heard separately in Object 9 above. The relatively slow pace of the sounds in this signal make it sound particularly lugubrious when compared to the signals from other cities. The single strike of a neighbourhood church bell is also heard in the distance.

Conclusion: Towards a Notion of Intangible Industrial Heritage

In surveying the above sounds on display in the Museum of Portable Sound, it is possible to perceive them as examples of a phenomenon also defined by composer R. Murray Shafer, the *soundmark*: site-specific sounds that become identifiers of a community. Schafer suggests that these types of community-focused sounds should be preserved: 'Once a Soundmark has been identified, it deserves to be protected, for soundmarks make the acoustic life of a community unique.' (1994: 10). In the case of the MOPS Transport gallery, each of the cities' various modes of transport systems has a particular sound – not just specifics like the vocal announcements of train stations, but also the particular attacks and timbres of beeps to alert passengers, the sounds of different types of automatic doors, engines, etc. These sounds alert passengers that they are travelling within a specific community.

Likewise, people in urban environments depend on specially designed audio interfaces for guidance within many post-industrial systems. Smartphones, microwave ovens, elevators, cash machines, and other devices are all designed to sound in specific ways in order to convey specific information to aid the user's understanding of their operation. Although the traffic crossing signal sounds described above in the MOPS Audio Interfaces gallery are designed for use by people with a visual impairment, they are also heard by everyone capable of doing so, and heard consistently in specific locations. These signals not only assist in crossing streets, but their presence helps to alert members of a

community which intersection they are currently at, or which neighbourhood they are in; they become part of the auditory signals that community members use to wayfind. The unique design of each city's street crossing signal system is a kind of soundmark that helps to identify a community.

These are the sounds of industrial heritage – the sounds of machines produced by industry to be used by the public in their daily life. These sounds may be ephemeral interfaces, but they also can function as part of a community's sonic identity; one only has to think of the marketing and merchandising of a phrase such as the London Underground system's 'Mind the Gap' announcement to realise the power that the sounds of transport systems possess to become symbols of a community. As such, there is a vast world of sonic cultural material that, if it is collected at all, is usually done so by libraries and archives rather than museums, where it is (mostly) left to languish unheard. Institutions such as the British Library's Sound Archive hold phenomenally large collections of recorded sound; and although they do occasionally exhibit selections of their sound collection, the majority of it remains locked away in the archive, with only portions of it currently digitised and available online. There is a great difference, however, in accessing sounds in an archive versus encountering them on display in a museum. People interested in the collections of the British Library Sound Archive must do their own digging to discover what might be relevant to their interests. Museums remain the world experts at the curation and exhibition of cultural heritage, and as such, would be able to reach a more diverse audience if they chose to display post-industrial sounds as objects alongside the physical ones they currently focus on displaying.

Part of the reason why museums remain ambivalent about the significance of sonic culture may stem from the limitations of UNESCO's above-mentioned definition of intangible cultural heritage:

> *[Intangible cultural heritage] includes traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts.* (UNESCO 2017; emphasis mine)

This definition's focus is on the past and the future, not the present; it acknowledges rituals and traditions made in the past by *ancestors* being passed on to future *descendants*, yet it is not inclusive of ritualistic behaviours and cultural practices of the present. In addition, although this definition takes into account many traditions that generate sound-related heritage, the sounds themselves are not actually prioritised as intangible cultural heritage – only the *knowledge* needed in order to re-create a contemporary facsimile of a previous era's practice. Indeed, UNESCO's definition, in its justifiable intention to be inclusive of the cultural traditions of so-called 'non-Western' cultures, has also overlooked a significant aspect of Western and Westernised culture: industrial heritage. While industrial heritage traditionally focuses on the physical artefacts produced by industry, many of these artefacts also made – or make – sounds crucial to the way these devices are used or interpreted, as demonstrated by the sound objects in the two case studies above. Yet, due to museum practitioners' lack of either experience with or knowledge of sonic culture, important sonic heritage of the present remains overlooked by many museums.

What if there existed a sort of 'expanded field' of intangible cultural heritage within museum practice, one that included the collection and preservation of sounds in its remit? While a similar strategy has been previously attempted by the World Soundscape Project (co-founded by R. Murray Schafer), their anthropological and ethnomusicological work has primarily remained an influence upon the worlds of musical composition and musicology rather than museology, and been relegated to a few album releases (Jèarviluoma et al 2010). Similarly, cultural anthropologist Steven Feld's seminal work in this area (2012) has likewise been embraced by the anthropology, sensory ethnography, musicology, and sound studies worlds but has rarely dovetailed with museum practice; and more recent work by the Sensory Ethnography Lab at Harvard University <https://sel.fas.harvard.edu> has primarily been focused upon creative outputs of art installations and documentary films (Leimbacher 2014).

As museums seek to escape their own sensory silo and cross over into areas of display beyond the visual, an expansion of UNESCO's definition of intangible cultural heritage could help to more fully integrate the notion of post-industrial sounds – both recorded and live, collected by humans and generated by the devices they have crafted – as an aspect of human culture studied and exhibited within museum practice. This acceptance of an expansion of UNESCO's notion of intangible cultural heritage could have a significant impact upon the world of museum practice in general: indeed, what kinds of stories could museums of all types tell if they could let visitors *listen to*, and not just *look at*, the artefacts of humanity's industrial heritage?

BIBLIOGRAPHY

ALIVIZATOU, M. (2016) *Intangible Heritage and the Museum: New Perspectives on Cultural Preservation*, Routledge.

ALŸS, F. (n.d.) Francis Alÿs: Semáforos, [online] Available from: http://francisalys.com/semaforos/ (Accessed 3 October 2017).

BENJAMIN, J. (2014) The Industrial Sonifact and the Soundscape of the Anthropocene, *Journal of Contemporary Archaeology*, **1**(1), pp. 119–123.

BIJSTERVELD, K., Humboldt-Universität zu Berlin and Sterne, J. (eds.) (2013) Soundscape, landscape, escape, In *Soundscapes of the urban past: staged sound as mediated cultural heritage*, *Sound studies series*, Bielefeld, Germany, Transcript, pp. 181–194.

BRYANT, L. R. (2011) *The Democracy of Objects*, Ann Arbor, MPublishing, University of Michigan Library.

CLIFFORD, J. (1997) Museums as contact zones, In *Routes: travel and translation in the late twentieth century*, James Clifford (ed.), Cambridge, Mass., Harvard University Press, pp. 188–219.

CURTIS, C. (2012) Universal Museums, Museum Objects and Repatriation: The Tangled Stories of Things, In *Museum Studies: An anthology of contexts*, Second, London, Blackwell, pp. 46–61.

DOUET, J. (2013) *Industrial Heritage Re-tooled: The TICCIH Guide to Industrial Heritage Conservation*, Left Coast Press.

DUNCAN, C. and WALLACH, A. (2012) The Universal Survey Museum, In *Museum Studies: An anthology of contexts*, Second, London, Blackwell, pp. 46–61.

FELD, S. (2012) *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression, 3rd edition with a new introduction by the author*, Third edition, Durham N.C., Duke University Press Books.
GEISMAR, H. (2018) *Museum Object Lessons for the Digital Age*, UCL Press.
HICKS, D. (n.d.) The 'universal museum' is a 21st-century myth, *Art Newspaper*, [online] Available from: https://www.academia.edu/36700506/The_universal_museum_is_a_21st-century_myth (Accessed 9 July 2018).
HILMES, M. (2012) Radio and the imagined community, In *The sound studies reader*, Sterne, J. (ed.), London, Routledge, pp. 351–361.
HUXLEY, R. (2003) Challenging the dogma: classifying and describing the natural world, In *Enlightenment: discovering the world in the eighteenth century*, Burnett, A. and Sloan, K. (eds.), London, British Museum, pp. 70–79.
JÈARVILUOMA, H., UIMONEN, H., VIKMAN, N. and KYTÖ, M. (2010) Acoustic environments in change – Introducing the study of six European village soundscapes in transition, In *Acoustic environments in change & five village soundscapes*, Jèarviluoma, H. and Schafer, R. M. (eds.), Tampere, Tampereen ammattikorkeakoulu, pp. 16–33.
KANNENBERG, J. (2017) Towards a more sonically inclusive museum practice: A new definition of the 'sound object', *Science Museum Group Journal*, (08), [online] Available from: http://journal.sciencemuseum.ac.uk/.
LEIMBACHER, I. (2014) The Sensory Ethnography Lab: An innovative Harvard University program's dynamic audiovisual experiments from Sweetgrass to Manakamana, *Film comment.*, **50**(2), pp. 36–39.
NOVAK, D. and SAKAKEENY, M. (eds.) (2015) *Keywords in Sound*, Durham ; London, Duke University Press Books.
PICKER, J. M. (2003) *Victorian soundscapes*, Oxford, Oxford University Press.

SCHAFER, R. M. (1994) *The soundscape: our sonic environment and the tuning of the world*, Rochester, Vt, Destiny Books.
THOMPSON, E. A. (2002) *The soundscape of modernity: architectural acoustics and the culture of listening in America, 1900-1933*, Cambridge, MA ; London, MIT Press.
UNESCO (n.d.) What is Intangible Cultural Heritage? - intangible heritage - Culture Sector - UNESCO, [online] Available from: http://www.unesco.org/culture/ich/en/what-is-intangible-heritage-00003 (Accessed 20 April 2017).

What will our future collection look like?

Pieter Neirinckx

The museum

In 1975, Ghent City Council members noted the neglected state of the mule jenny. This early 19th-century spinning machine, the symbol of the first industrial revolution in Flanders and centrepiece of Ghent's textile heritage, was kept, disassembled, at the Castle of the Counts (Gravensteen).[16] A year later, the city ordered a working group for industrial archaeology to create a textile museum, to house the newly-restored spinning machine. The new Museum of Industrial Archaeology and Textiles, MIAT for short, was temporarily housed in an annex of the city archive. Museum Director René De Herdt, together with a small team of motivated employees, introduced the first forms of public activity around a modest collection of industrial heritage artefacts.[17] Due to a lack of space, temporary exhibitions were held in various cultural and historical buildings in Ghent.

In 1985, MIAT was given permission to use the former Desmet-Guequier cotton-spinning mill as a museum depot. Four years later, Ghent's City Council decided that the mill was also the most suitable location for showing MIAT collection. The construction, built of cast iron, steel and brick, dates back to 1905-1912. As with the textile factories in Manchester (England), large windows and shed roofs let in as much natural light as possible. Hence, the building forms a unique historical environment or context for the collection. On the other hand, it poses challenges for presentation and storage conditions.

The permanent exhibition, displayed on ca. 3,300m², is currently under partial reconstruction. From September 2018 onwards, visitors will discover the story of Ghent as an industrial city, embedded in a broader national and international context. A second part of the new museum set-up will focus on the history of manual and industrial printing. The third section, 'Cotton Noise', portrays a textile factory, tracing the production process from cotton plant or fibre to finished product. Volunteers demonstrate the historical collection of spinning machines and weaving looms, creating the same racket as in the old days. Temporary exhibitions will highlight various sub-collections. On average, MIAT welcomes 40,000 visitors per year.

Parallel with the refurbishment of the permanent exhibition, MIAT plans on moving the entire museum collection towards a new, and for the first time, purpose-built or specially-equipped heritage depot. Time to assess the existing collections or accumulated wealth and to make plans for the future.

---

[16] The mule jenny is a semi-automatic spinning machine. It has been listed among the Flemish Community's Masterpieces, since 2010. Only two other working examples are known to have survived, worldwide.

[17] VAN NIEUWENHUYSE A. met de medewerking van DESIMPELAERE N. en KINNAER C., Het MIAT, van mule jenny tot een museum met een kwaliteitslabel, Geschiedenis: zijn werk, zijn leven: Huldeboek René De Herdt, Gent MIAT, 2010, p. 241 – 272.

Building the collection
Given the importance of the textile industry for Ghent and the surrounding area, MIAT concentrated on this specific branch of industry when building its collection between 1977 and 1989.

In the 1990s, the museum widened its focus and started looking at the material culture of industrial society. Efforts to build the collection became object-driven, rather than thematic. The bulk of the collection was acquired passively, by accumulating donated items, instead of actively purchasing missing links or filling in gaps in a pre-compiled collection plan. Thirty-eight years of 'passive' collecting results in an impressive and diverse collection of more than 30,000 objects, which can be divided into almost 38 sub-collections:

Agriculture and Horticulture, Architectural Elements, Archives, Cartography, Clay and Brickmaking, Diamond Industry, Education, Emergency Services, Energy Industry, Film Equipment, Food Industry, Fur Clothing, Gunpowder and Ammunition, Home Appliances/Small Appliances, Home Maintenance/Household Products, Laboratory and Research Equipment, Logistics and Transport, Marketing and Advertising, Medical and Paramedical Services, Metal Industry, Musical Instrument Construction, Office Supplies/Office Automation, Packaging Industry, Personal Hygiene/Welfare, Pest Control and Pest Management, Pigments and Dyes, Printing Industry, Pulp and Paper Industry, Rope Works, Stage Techniques, Shoemaking, Street Furniture, Tannery, Telecommunications Audio/Video, Textile Production, Tobacco Processing, Woodworking.

Due to its pioneering position, the museum collected a very wide range of artefacts. Its collection efforts were often motivated by a certain fear of loss. 'Who else will keep it?' Unfortunately, for lack of budget or shifts in staffing, building or maintaining the necessary expertise regarding certain topics or collections sometimes seemed impossible. Meanwhile, the industrial heritage community in Flanders grew, with new powerful players. In the context of the move to the new heritage depot and the related collection valuation process, the museum tries to find the most relevant heritage partner for each collection. MIAT considers every collection for which it can find a heritage partner with specific expertise to be closed. These collections are also eligible for deaccessioning. So in time, MIAT will only remain active in sectors or collections in which it is the only or most important expert. In doing so, the museum wants to motivate and encourage other heritage managers to take up responsibility for a particular topic of industrial heritage, by specialising, and therefore building or retaining a reason to exist. Nevertheless, MIAT also wishes to appeal to national and international heritage partners, through peer evaluation, on topics or collections for which the museum itself has built up considerable expertise (e.g. printing and textile production). Networking still is a valuable tool.

Preservation and valorisation of industrial heritage in Belgium and Flanders has long been supported by the motivation and commitment of small local institutions and volunteers, often with limited resources. Both the professionalization of the sector and the development of a commercial circuit of restorers came late. Private owners and project developers often lack the necessary knowledge when preserving industrial heritage or experience difficulties in finding skilled support. By sharing its experiences and expertise, the museum wants to motivate owners to preserve, large-scale industrial heritage in the first place, especially in situ. Therefore, the function of MIAT recently shifted from a

classical collection acquirer to a cultural broker who shares his expertise and mediates within the wider heritage community.

Today, the museum checks each potential acquisition of new collection pieces against a set of selection criteria. These are partially based on Spectrum and are adapted to the needs of the collection.[18] The questionnaire ensures that the acquisition process is based upon conscious choices. Over-collection or collecting outside the collection topics (hoarding) should be things of the past.

The revival of 'Oral History'

Ever since its foundation, MIAT has collected more than just items related to the pure material and technical aspects of the industrial history. Influenced by the developments in 'Oral History', which were introduced in England by Prof. Dr Paul Thompson, as early as 1978-1980, MIAT started a series of interviews, entitled 'Their Work, Their Lives'. All 80 textile workers interviewed, predominantly from the centre of Ghent, were active in industry before the 1950s. Conversations on working conditions, union membership, leisure time or even random memories draw a unique picture of a specific population, active in the first half of the 20th century. It offers the museum the opportunity to frame the machine in the context of the working and living conditions of the workers, who toiled long hours, and thus focus on 'the man or woman behind the machine'. In the 1980s, the data was used for a series of successful panel traveling exhibitions, with accompanying catalogue, a broadcast on national television and three colloquia on oral history, among other things.

A sequel was launched this year, under the title 'Their Work, Their Lives'. Testimonials from the Ghent textile world, 1950-2010.[19] This time, the study includes the difference between the academic approach of oral history and the practical context of a museum. It is the intention to register the testimonials as part of the museum collection, making them accessible by using the existing collection management system and even linking them to classic collection pieces, which are being acquired within the framework of the project.

The current permanent museum exhibition uses testimonials, albeit in a limited capacity. They were reread by the witnesses themselves, following a transcript, and were processed in sound bites of approximately 4 minutes each. For most museum visitors, it adds a certain charm. Others find it contrived. And although the witnesses do their best not to use a pronounced Ghent accent, dialect sometimes forms an obstacle.

Communicating the more conceptual or abstract themes that 'Oral History' tackles has always been a challenge for the museum. In preparing exhibitions on topics such as child labour, working conditions and union membership, more textual notes, documents and audio-visual elements (flat material) are in supply than classic three-dimensional collection pieces. With the rise of multimedia, the problem might be exacerbated over the next decade. While the museum could count on immense interest in the 1980s, using 'panel traveling exhibitions', today we not only face the question of how to capture the

[18] http://www.collectionstrust.org.uk/spectrum

[19] in verslag, Lezing en Workshop Oral History – Paul Thompson – woensdag 29 maart 2017 – MIAT, p.9, http://www.miat.gent.be/sites/default/files/bijlagen/nieuws/20170330_ve_workshop_en_lezing_oral_history.pdf, consulted on 27/09/2017

visitor's attention, but also: how long we can stretch his attention span? Generation Z, also known as the I-, or Internet Generation, zaps, clicks and swipes away. Why go to a museum? The internet makes everything available from your easy chair, 24/7. In addition, patient museum staff and participatory internet users, worldwide, provide more internet content, every day.[20]

How about 3D digitalisation?

In the past, MIAT accepted offers of large-scale machinery, equipment, cast iron columns, the bigger steam engine, as well as storefronts, a port crane and even small pavilions from property developers and industrial plant managers. This resulted in a valuable and very diverse collection, but large-scale heritage comes with large-scale challenges. Due to their size alone, these pieces often literally weigh on the storage facilities of the museum. Besides, they are difficult to integrate into new projects or a new museum set-up.

When possible, MIAT tries to implement an active presentation of the collection, through demonstrations, because nothing is as passive and complex as a machine exhibited statically. And nothing draws the attention or arouses the interest and curiosity of the visitor more than the same machine, running at full power. On first sight, technical or substantive problems, such as providing the right raw materials and spare parts or securing the engines, so that they meet modern safety standards without compromising the historical value, are manageable. But both the textile and the historical printing department of the museum are supported by the indispensable commitment of a large group of volunteers, most of whom have enjoyed an active career in this specific branch of industry. They are the ones bringing heritage to life, providing the museum visitor with a unique experience. This particular part of intangible heritage is not easily registered and stored, as we, in the museum world, have always done, since the cabinet of curiosities was first created. For this is not 'the man behind the machine', but 'the man in interaction with the machine'. And what if the collection is too old, too unique or too valuable for demonstration?

We also note that production units and equipment are not only difficult to preserve, in terms of size, but safety requirements of recent decades ensure that the public sees a machine as a shielded and impenetrable, computer-controlled 'black box'. Raw materials enter at one side. Finished products miraculously emerge, on the other side, making it difficult for the public to grasp the actual functioning of the machine.

Together with eight partners, MIAT developed the project 'Diving into the Machine'.[21] It explores current 3D technologies, such as x-ray imaging, CT scanning, CAD modelling (and reverse engineering), photogrammetry and 3D laser scanning, through several case studies. The data are then evaluated on their usability in the preservation and dissemination of mechanised industrial and agricultural heritage. Can we use 3D in preservation and restoration? To what extent can we use 3D animation to give our

[20] .NEIRINCKX P., Le travail du MIAT relatif aux témoignages dans une perspective muséologique globale, de l'acquisition à la valorisation. In, Les témoignages dans les musées industriels. Entre Mémoire et Patrimoine, Maison de la Métallurgie et de l'Industrie de Liège, Liège 2016, p. 111-120

[21] https://duikenindemachine.wordpress.com/cases/, consulted 2/10/2017

visitors insight into the working principle of a machine? What are the short- and long-term costs? What are the advantages or disadvantages? [22]

The last part of the project focuses specifically on the sustainable preservation of digitised or even purely digital born 3D data, by raising awareness among 3D service providers on the use of archival standards and guidelines when producing 3D documents. The latter is not to be underestimated. Nor is good IT support.

Conclusion

The collection is no longer considered a fixture. Networking within the industrial heritage community allows the museum to refine the scope of its collection and to hone and better carry out its mission. Selection criteria, based on the evolving techniques for collecting, studying and communicating the different aspects of industrial heritage, can be used for acquisition and deaccessioning. The museum aims to offer its visitors a well-balanced overall experience, resulting from an optimal combination of tangible and intangible heritage, using the collection and diverse media. Sharing experiences and expertise has also shifted MIAT's function from a classical collection acquirer to a cultural broker, mediating outside the museum walls.

[22] VERROKEN T, LEMMES B, MESTDAGH R, 'Using 3D Digitization in the Preservation of Industrial and Agricultural Heritage', in Archiving 2017, Final program and proceedings, *IS&T Archiving Conference Riga*, 15-18 May 2017, p.49-53

Corporate Museum in France

Pr.-Dr. Florence Hachez-Leroy

Université d'Artois et Centre de recherches historiques (EHESS/CNRS)

At the beginning of the 21st century in France, many questions were raised by the opening of several new corporate museums, with resources and scenography of very high quality [1]: *L'Aventure Michelin* (2009), the museum Cristal Saint-Louis (2008) or even the Musée Yves Saint-Laurent Paris and the *Musée du 11 Quai Conti* in 2017 in Paris. At the same time, collections of companies are regularly exhibited in prestigious places: in 2011, at the Carnavalet museum, an exhibition on the leather goods Louis Vuitton, the Ratp at the Museum of Arts and Crafts, toys Villac at the *Musée des Arts décoratifs* after the Playmobils, or, in 2014, the Orient Express at the Institut du Monde Arabe, in 2017, Vicat for its bicentenary, at the *Société d'encouragement pour l'industrie nationale*[2]... and Paris does not have the exclusivity of these presentations: in regions, the Casino stores had their exhibition as well as the textiles of Rhone companies at the Museum of Art and Industry of Saint-Etienne for example.

These museums seem to meet the general criteria of museums: quality collections are presented with a neat exhibition design in appropriate environments and they have nothing to envy, for the form, to national museums and to those who have the label "*Musée de France*". Some corporate museums are also recognized under the name "*Musée de France*", a label awarded by the Ministry of Culture and imposing scientific requirements. Their creation has most often been entrusted to communication or architecture agencies, specialized or not in the industrial, economic and technical heritage. There remains the question of content: the visit of a number of these places suggests that if the use of such companies is indeed a sign of quality in the presentation, the text (or the global discourse) often lacks the necessary distance to avoid falling into hagiography. This question is all the more crucial that we see a large attendance of schoolchildren in these places.

[1] Florence Hachez-Leroy et Louis André (dir.), *Musées et collections d'entreprises, L'archéologie industrielle en France*, n°58, juin 2011. Pascale Meysonnat-Courtois, « Les musées d'entreprise en France. Une réalité à dépasser, un concept à inventer », *Lettre de l'OCIM*, n° 34, 1994, p. 13-17. Isabelle Cousserand, « Musées d'entreprise : un genre composite », *Communication et organisation*, n°35, 2009, p. 192-213. Philippe Boistel, « Collection d'entreprise : un sujet de narration pour les organisations ? », *Communication et organisation*, n°49, 2016, p. 161-174.

[2] https://www.industrienationale.fr/journees-patrimoine-2017/

Vicat Group organised an exhibition for its bicentenary in Société d'encouragement pour l'industrie nationale, Place Saint-Germain-des-Prés, Paris, 2017. ©FHL

The definition of corporate museums

Logically, a corporate museum is a collection presentation space that belongs to an industrial or private service company. This assumes creation and management without public subsidies. This difference in status does not subject them to national legislation such as the French Heritage Code. The public authorities do therefore not have control over corporate museums, whether at national or local level and their collections are not alienable: the museum can close, and the collections be sold at any time. Their fragility is one of their characteristics, very often linked to the economic health of the company. This was the case of the Christofle museum, in Saint-Denis, in Seine-Saint-Denis, near Paris, on the historical site of the company (2008), as well as for the museum of Seita, in Paris (2000), a company originally public, then privatized, which fell into the hands of Imperial Tobacco[3]. We must also add the closure of the museum Amora, in Dijon, producer of the famous French mustard (2006). In the first two cases, all or parts of the collections were sold at best in the auction room, and at worst to a scrap metal dealer for machine tools. Overall, most of them do not conduct studies on their collections or open them to researchers. From this point of view, most do not fit into the definition proposed by ICOM: "A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches,

[3] The privatized Seita merged with the Spanish group Tabacalera in 1999 under the name of Altadis, a company that passed under the control of the Imperial Tobacco group in 2008.

communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.[4]"

Their origin

In France, the creation of collections within companies has its sources, during the nineteenth century, in the desire of entrepreneurs to anchor their activity in a certain technical history, legacy of past know-how, entering the path of progress and industrialization. There are also places at this time dedicated to the presentation to the public, of industrial machines and tools, constituted in particular by chambers of commerce and industry or by groups of entrepreneurs. The goals were clearly pedagogical. They aimed at familiarizing the working class and craftsmen with new techniques and machines, "taming" them in some sense, as well as informing the contractors likely to use these machines. In this context, it should not be forgotten that pedagogy and museums were also intended to create an available and qualified workforce, just as artistic research aimed at maintaining quality and French art in the face of massive production – and invasive – of the all-powerful England. Collections both technical and artistic were also presented in other places, as it was necessary for these captains of industry to affirm their erudition by the possession or even the order of paintings or sculptures related to their activity. A number of these images of the industry were thus command works. Indeed, there were often within large established companies and family-owned, rich and diverse collections[5]. The oldest of these museums in France is undoubtedly that of the Benedictine, this liqueur manufactured in Fécamps, in Normandy. The Benedictine Palace, with its eclectic architecture (mix of neo-Gothic and neo-Renaissance style) built in 1888, has been welcoming visitors since. It presents the collection of ancient and medieval art of the founder Alexandre-Prosper Le Grand, together with an exhibit presenting the history of the manufacture of this liquor (room of spices and distillery).

Very heterogeneous forms

The forms of the corporate museums vary considerably, from a modest room in the administrative building (Arc International) to the former "castle" of the director (Essilor) and to the museum with the most accomplished scenography (L'Aventure Michelin), and even the construction of a new building (La Vache qui rit). Among these museums, some are installed at the very places of the company activity. The city of Telecom Pleumeur-Bodou, created by the company Orange, is located on the site of the radome, inaugurated in 1962 to provide transatlantic television retransmission. The Lactopôle André Besnier, in Laval, is situated partly in the building of the former dairy cooperative of 1933 reconstituted with period equipment. The Musée Yves Saint-Laurent Paris, opened in Paris in 2017, takes place in the former haute couture house of the couturier. The Fondation Pierre Bergé-Yves Saint Laurent, established in 2002, manages it. This foundation has two other museums dedicated to the life of Yves Saint-Laurent: the Jardin Majorelle and nearby, the Musée Yves Saint Laurent, both in Marrakech. Other museums can be installed in a large storage shed open to the public and presented as a conservatory (Citroën). Some very successful museums allow combining the visit of the permanent exhibition with that of workshops in activities. The Bohin pins factory in Normandy is a very successful example of such offers, with employees trained to speak

[4] http://icom.museum/the-vision/museum-definition/ (accessed June 23, 2018)

[5] The Musée d'Orsay, in Paris, has presented the collections of Schneider in 1995 and Saint-Gobain in 2005.

in front of the public. Another example, the Musée du 11 Quai Conti, in Paris, opened in 2017. After a magnificent visit of the rooms of the museum installed in the old factory and dedicated to the numismatics history, one can visit the engraving workshop to discover a multi-century know-how. The Monnaie de Paris was created there in 864 with the Edict of Pitres promulgated by Charles II. It is the only workshop in France that has been active continuously since its creation.

The milk jugs, Lactopôle André Besnier, Laval, 2018. ©FHL

What is the nature of these collections?

The vast majority of companies present in their museums objects related to their technical and commercial history. The visitors can see the oldest objects produced by the company. This is often the case for automobile museums such as Peugeot or Citroën. They can also discover the history of production technology in the company, from the artisanal stage to the automation. The history of advertising and marketing holds an important place in them, possibly occupies the whole space for some: Maison de la Vache qui rit, L'Aventure Michelin, the Haribo Museum, etc. Some of these museums have a much broader scope, and tend to present the history of a consumer domain, beyond the scope of the company. This is the case of Lactopôle in Laval, owned by Lactalis, but which offers collections of objects related to the production, processing and consumption of milk from all over the planet. This is a collection started by the original owner and continued by his successors. The postal museum, L'Adresse, located in Paris, exhibits many objects that can trace the history well before the creation of the company and linked to the political history of France. This museum is labelled "Museum of France" and was previously a public museum, when the company belonged to the French state.
The Louis Vuitton Company has a collection of trunks and old luggages that can complete the range of its own productions and tells a story of travels. It also runs a museum in Asnières-sur-Seine where the company's story is told.

Other kinds of museums complete this panorama, for instance, contemporary art collections in vogue since the year 1990. The personal collections of the managers of very large international groups are presented in prestigious locations due to renowned architects. The legal forms of these places are variable, most often optimized for tax purposes; this is the case for foundations like those of Bernard Arnault[6] (LVMH) and François Pinault[7] (Kering). Some captains of industry invest in prestigious collections of industrial objects. For instance, the Ralph Lauren's sports cars collection that has been presented in 2011 at the Museum of Decorative Arts includes old cars since the 1930s.

The usefulness of corporate museums

A company that embarks in the creation of a corporate museum makes a strategic decision in terms of communication and marketing. Here, the museum is an instrument at the service of an internal and external strategy. Its constitution makes it possible to formalise an identity and a corporate culture around a common history and the know-how of employees. For the external side, the objectives of corporate museums may be central or not. For some, the museum gains the loyalty of customers by offering a moment of pleasure and renewed business benefits at each visit through the associated store. The visit is also a way to explain the manufacturing process and to respond to consumer questions (Roquefort Société). In some cases, the visit of the museum is combined with those of the factory or not: sometimes, the visit of the museum could substitute to the visit of the factory. That is true in the agrifood industry, where the hygiene constraints are very strict (Cité du chocolat, Valrhona). More immediate motivations can overcome the cultural and educational objectives. The image issue remains nevertheless important, and it is reflected in the choice of the name of the museum. In France, the term *musée* (museum) is considered old and dusty. Marketing agencies are choosing other names like "espace" (Space), "Aventure" (adventure),

[6] Francine Rivaud, « Quand Bernard Arnault lève (enfin) le voile sur ses trésors cachés », *Challenges.fr*, mis en ligne le 25 octobre 2014.
[7] Raphaëlle Bacqué, « François Pinault, le collectionneur », *M le magazine du Monde,* mis en ligne le 22.06.2018.

"Maison" (home) or "Cité" (city) with or without a qualifying sentence to advertise the experience: "The Michelin adventure: a place, a history, a future", "Cité de l'Espace: live the experience", "City of champagne: a journey in the effervescence" etc.

To conclude: designing a quality charter

Gradually, corporate museums have become economic and cultural actors in their own right. They drain important tourist flows and complement, even boost, the tourist and cultural offer of the territories. Many of the collections that are presented have no equivalent in public museums, which in any case do not intend to keep such collections. Their contribution to the history of technology and to economic history, as well as to industrial heritage, is important and should not be underestimated. However, the content that is exhibited could often be improved: without contradicting the opening remarks of the company, historical contextualization would make them real places of reference for all audiences, including schoolchildren. From this point of view, the presence of a scientific council, supported by historians, would ensure the public a more solid and correct presentation, that can objectively stimulate reflection visitors. The presence of qualified curators could also help the optimal conservation of collections, and their eventual enrichment. The heterogeneity of corporate museums does not facilitate the task: the drafting of a quality charter could lead to a greater homogeneity of practices and improve the quality of these places. The different actors from both the cultural and economic sides would gain from the adoption of such a charter. A dialogue remains to be established from this viewpoint, which we call for.

The machinery room to make needles. The visitors circulate in the center during the activity of production. Panels are had part and others to explain the process. Bohin manufacture, Normandy, 2017. © FHL

Application of modern technologies on studying and preserving cultural heritage

Professor Dr. Kamil İbrahimov

The article shows the importance of applying new technological innovations to the historical significance of the archaeological and architectural heritage of learning, preservation, restoration, and transmission to future generations. In connection with the application in computer and other modern technologies, which have become an integral part of our lives in modern times, the historical history of the Icheri Sheher, the pearl of our architectural heritage has been adapted to this technological process. The article describes the advantages of modern technologies for the acquisition of innovative scientific-practical results by the electronic cadastral map of the ISC "Icheri Sheher".

Historical, cultural and archaeological finds are the product of the superstition, which holds the economic-political and legal relations of a certain period. Therefore, architecture, as well as material and cultural monuments, are not merely aesthetic and philosophical concepts of a society that creates them. It is an art form of a complex which is enriched form of many aspects of society, economy, and politics.

One of the major problems of studying and preserving cultural heritage in the present time is the accurate assessment of historical and cultural monuments without denying the culture of the distant past.Cultural monuments are a material contrast to the distant past, and we treat them as if we were to perceive and preserve these stone chronicles.

At the moment, under the conditions in which the wealthy society has grown, the initial social expression of the architectural monuments reflecting the economic and political features of the era has changed in many respects. These monuments are a reminder of the architectural skills and folk arts of the past.

These monuments bring people closer together, enriching them, leading to the mutual influence of national cultures, creating communication between different nations. Foreign tourists who want to watch and study our historical and cultural monuments are also embracing the culture of our people.

From this point of view, the Icheri Sheher historical and architectural complex monuments are the cultural pearl of our nation since 2002, at the time that it has been added to the Universal Heritage List by the UNESCO organization and turned into a common asset of humanity.

This city is a kind of urbanism and its self-sacrifice. Some cities were stuck in military and political positions, while some were hit by a strong tornado. Some of them have been destroyed by tyrannies, floods, and natural disasters, while others have fertile landscapes, favorable natural-climatic conditions, a strong economy, trade, and craftsmanship.This was how Medieval Baku city look likes.

In order to properly illuminate the socio-economic life of the Azerbaijani people their material and spiritual culture, the study of cities and urban life in the Middle Ages has

great scientific value. Based on historical, archaeological, numismatic and epigraphic materials, this problem is thoroughly studied. However, in the modern world where integration and globalization developing, there is a need for new electronic techniques in the study and protection of cultural heritage.

Buildings, separate complexes along with aesthetic values have also material value. Along with new buildings, old buildings are also used for a variety of purposes. The Venice Charter also highlighted the need for public-historical monuments and public buildings.

But in the conditions of the market economy, the private property and property markets destroys many historical, cultural and architectural monuments of the country. As a result of the privatization of residential houses and the ownership of some buildings, the architectural appearance and planning of historic buildings are largely corrupted. Their extensive research and destruction will separate us from our distant past.

The most important measures taken in this direction were the Order of 16 August 2006, signed by the President of the Republic of Azerbaijan on restoration and preservation of historical architectural monuments in Baku. It was tasked to implement a series of measures to preserve the historical architectural monuments as a national cultural treasure. The main purpose was to strengthen its role the next generation and to ensure the proper promotion of the numerous foreign visitors to our country.

Strengthening scientific research to maintain the archeological and historical architectural monuments under the conditions of urban development and construction, also has leading roles in this area. This requires the use of modern technologies to carry out field exploration, analytic results, and systematic study. Efficiency is dependent on the nature of the field research, the applied technology, the nature of the results and the application of similar methods is almost crucial for the current period.

The world's research methods are based on the application of modern space and surface technology. This includes distance capture, space photogrammetry, stereo grammetry, scanning from space or space, aerostereoslovel trailers and global positioning devices.

The use of infrared and radio equipment is a great opportunity to detect and safeguard archeological monuments without any preliminary excavations. With the use of surface laser scanners, it is possible to obtain a large number of dots in the 3D version of the outer and inner dimensions of the monument, each of which has dimension information.

With vectorization of such points, it is possible to have valuable information carriers of the state of restoration with the development of scientific researchers based on numerous scientific analysis and analysis of the real state of architectural monuments. It is possible to analyze the chronology of changes taking place in the history of the city by collecting aerobics and space images of different periods. Drawing up digital maps based on information on architectural monuments, creating personal computers with their extensive technical capabilities. Their software provides reliable protection for new archaeological research methods, a study of monuments, and systematization of data. In modern times, the main development directions of society are computerization and informatization of all spheres of social life. It is no coincidence that one of the eight development goals of the third millennium adopted by all UN member states and it is the

development of a global partnership that has the potential to benefit from information and communication technologies (ICT). ICT is applied to all areas of social and economic life at a dynamic pace as it affects the development of society and the economy. Currently, the ICT coverage covers government agencies, non-governmental and private entities, socio-economic, social-political, educational, etc. The necessity of providing society with the necessary information is now recognized by all.

At the World Summit on Information Society, held on 10-12 December 2003 in Geneva, the use of information technology capacities to achieve the goals set out in the Millennium Declaration's Principles has been considered as a major task. Along with the widespread development of computer technology, with the help of this technology, new research methods are being developed every day.
It is a prerequisite for rapid data collection and rapidly analyzing and informing users about the availability of information. These can be done simply by creating a final system that can not be completely remedied, just like a process. GIS (geographical information system) is a perfect system for reliable analysis and management of planning, data composition, engineering and historical data needed to make optimal decisions in the area with certain boundaries.

In the case where mapping is very ancient, geographical information systems are the latest technology created by people of the past and revising the environment. Geographical Information Systems – Creating the map of the global world as the element of events and in the real world, planning and management are not wrong.

GIS technology has the capability to provide comprehensive visualization of all the data presented on the basis of maps, including spatial geographical analysis, basic data, and prices.

The widespread implementation of all these capabilities makes the GIS different from other information systems.

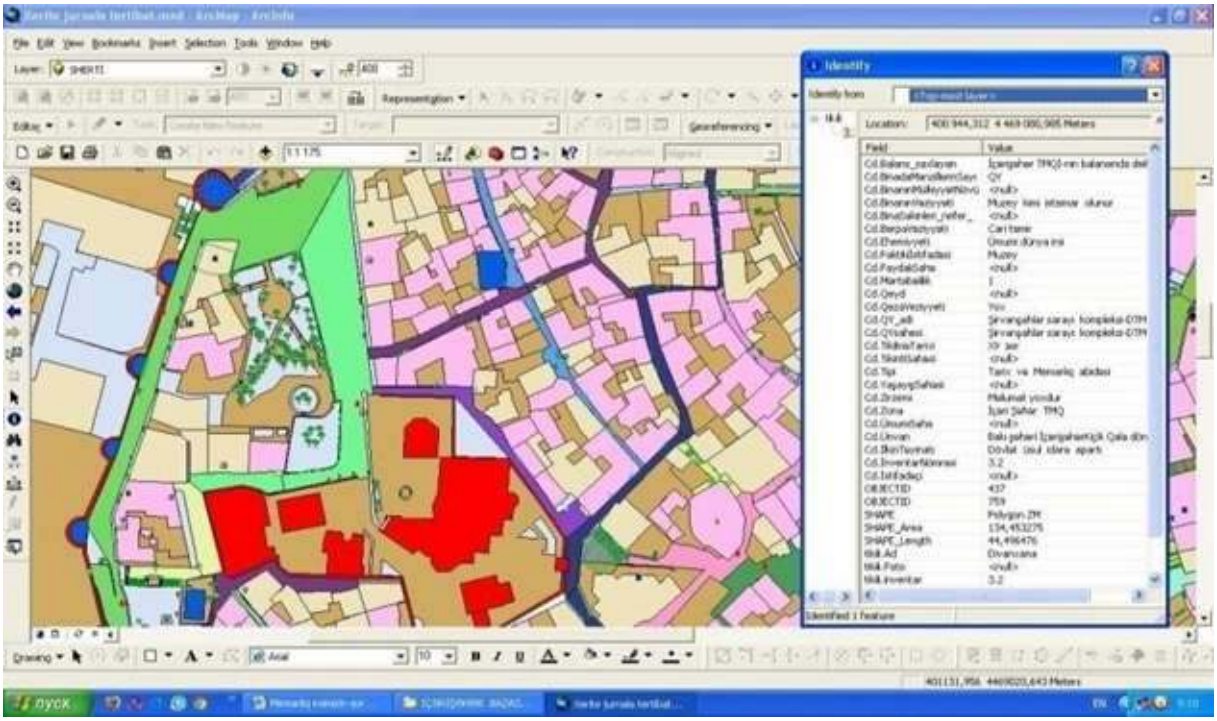
It is possible to get absolute results in terms of strategic planning over its predictability. Whereas the mapping and analysis are not regarded as a new direction, GIS technology focuses on the most recent one, and in this context, it can effectively, comfortably, quickly solve many problems and issues globally. All analyses are automated and a number of problematic issues that people have not been able to solve beforehand are effectively solved by modern technologies.

Any existing geographic information has information on the spatial status. Because these data are geographically related to coordinates, their automated management is very easy. With it, you can quickly and accurately identify any object and event information from the map. For example any address, institution, natural disaster, route, natural object, station, and so on. The process of obtaining detailed information on processes is one of the factors that once again demonstrate the functionality of the CIS. The application of the analysis in any direction creates conditions for the saving and utilization of large quantities of material resources. In this system, cartographic base data is uninterrupted and does not depend on scale. Various scale maps can be drawn for any area based on such baseline estimates. At any time, base data can be updated in a short timeframe. Map and data created for any area can be used by various organizations instantly and on all networks. The system created to meet the internal information and

management requirements of individual organizations can be easily integrated into public information systems in the future.

The digital electronic map of the Icherisheher Historical Architecture Reserve has been compiled using this technology innovation. Inventory numbers on the historical and architectural monument and the parcels of the land plot were placed on the list approved by Decree No. 132 of the Cabinet of Ministers of the Republic of Azerbaijan, and the other buildings and the land plots where they were located were also drawn up and tabulated. A map was drawn on the archeological monuments and archaeological excavations along the same rules and associated with attribute data. With the help of the created electronic map and databank, it is clear that the city's changing plan for the various historical periods is closely monitored and explored.

Planning arrangements at the beginning of the XVII-XIX centuries, despite the dramatic changes in the structure and composition of ancient cities, the main city ensembles have been able to maintain their active compositional significance. In the course of exploration of the data, there is a change in the location of the settlement in different historical periods. For example the project of reconstruction of the Baku fortress built in 1835, which was already studied by Icherisheher researchers. Some of the details of this plan change can also be viewed from historical publications.



During the archeological excavations carried out in 1947 and 1958-1962, a large bath (26 room) complex was discovered beneath the ground cover. At present, the bath is cleaned from both the top and the inside and the Shirvanshahs are included in the palace complex.

Another example is: it is possible to note that at the bottom of the walls of the sacred fortress, close to the double fortress doors, there is currently a bath in the middle of the Baku khan's house under the ground. The interior and exterior dimensions of the monument were scanned in the 3D version with the use of a groundbreaking laser scanner in this bathroom compartment. Thus, the effectiveness and success of the archaeological excavations carried out in this area have been achieved, and the ground and conditions for future conservation work have been created, and all this data bank has been transferred to GIS map.

It should be noted that, based on all the information and information on 50-year archaeological excavations in the ancient city of Baku in the last ten years, an archaeological map of Icheri Sheher was created on the basis of photographic and architectural plans, and this information bank was transferred to GIS map. Any user who can now access the GIS map of Icheri Sheher can get acquainted with the archeological map and the archeological history of the city in the electronic version.

It is important that all members of the organization use the information collected on any organization to become a necessity for the establishment of different corporate networks. This is particularly relevant in the case of mixed analyzes such as the management and coordination of many economic, political, social and cultural information in the use of space-related information. The introduction of an electronic cadastral map in corporate systems enhances the widest possible use of collected data.

Thus a study of the historical and cultural architecture of our archeological monuments on the basis of modern technologies in our country is the systematization of scientific and practical analyzes and research on the history. Also, it affects our architecture and the legal and cultural significance. On the other hand, scientific improvements and archeological exploration also improve the efficiency of the excavation work. It is useful for studying, mapping and preserving all of our cultural heritage sites throughout the country.

BIBLIOGRAPHY

HÜSEYINOV E., HASANOV A., MIKAYILOVA M., Tarixi şəhərin memarlıq irsi. Bakı, p.13
JURAVLEV A.M, RABINOVIÇ B.İ. Книга об Архитектуре. Moskva, 1973, səh.180
YOMRALIOĞLU T., Coğrafi bilgi sistemləri. Trabzon, 2000 səh. 48
Azərbaycan Cografiya Cəmiyyətinin BDU filialının əsərləri. Bakı Universiteti nəşriyyatı, II cild, Bakı, 2009. səh. 41
Şəhərsalmanın əsasları və Daşınmaz əmlak barəsində sənədlər toplosu. Qanun nəşriyyatı, Bakı, 2007.
ALIYEV A.Q., mühazirə materialları.
AŞURBAYLI S. Bakı şəhərinin tarixi. Bakı, 2006.
FARHADOĞLU K. Bakı İçərişəhər. II cild, Bakı, 2006. Qədim qalanın yuxuları. Dubay, 2013.
İçərişəhər. İstanbul, 2013
www.esri.com

Attempt of a corporate museum that owns industrial collections about tobacco and salt

Reiko SAKAKI

Tobacco & Salt Museum, Tokyo, JAPAN

Tobacco & Salt Museum opened on November 3rd, 1978, and since then has been engaged in a variety of activities, including collection-building, research, and giving presentations abroad on the history and culture of tobacco and salt, in addition to hosting special exhibitions on a variety of themes. But from the open till the present we have been asked the following questions constantly: "why tobacco and salt?" or "are there any relations between tobacco and salt?"

The answer is simple. Because the museum was founded by the Japan Tobacco and Salt Public Corporation (now Japan Tobacco Inc.), which handled tobacco and salt as monopoly commodities at that time. Then, why did the Japan Tobacco and Salt Public Corporation decide to establish the museum? We look back upon the short history of the museum.

The short history of the Tobacco and Salt Museum and its collection

The museum opened in 1978, but the collection of materials dates back to more than a half century before that. It all started in 1932, when at that time Director-General of the Monopoly Bureau in the Ministry Finance decided collecting materials in an organized basis. His aim was to collect *ukiyo-e* woodblock prints depicting smoking items or smoking scenes, smoking implements, and other historical materials related to Japanese tobacco culture. At the time, the unique Japanese habit of smoking finely shredded tobacco through *kiseru* pipes was gradually declining in popularity due to the introduction of the new smoking styles like as pipe, cigar and cigarettes from abroad. Also in this period there was a thriving movement surrounding the export and sale of Japanese artwork overseas, including *ukiyo-e* prints, *kiseru* pipes, t*abakoire* tobacco-pouches, *tabakobon* tobacco trays, and others used for so long in daily life of the Japanese people. In view of this situation, the Director-General thought that it would probably have been impossible to put together a complete collection thereafter if he had let that opportunity slip by.

Thanks to his decision, at that moment about half of the Tobacco & Salt Museum's current collection of *ukiyo-e* prints and smoking implements was complete. At around the same time, a "Tobacco Exposition" toured major Japanese cities with the principal aim of spreading general knowledge and understanding of tobacco among the public, and some of the collected materials were exhibited in these expositions, meanwhile some materials related to the local tobacco history were added to the collections. But the outbreak of war suspended collecting materials, and most of the collections were stored in a warehouse equipped with the most up-to-date temperature and humidity controlled facilities.

After the war, in1949, the Japan Tobacco and Salt Public Corporation was separated from the Monopoly Bureau, and efforts to build up a collection were resumed, albeit on a small scale. Once again a part of collections were displayed to the public at events related to the corporation, but calls for a permanent public display gradually grew in both inside and outside the corporation. Then, in 1974, the decision was made to establish the Tobacco & Salt Museum in commemoration of the 70th anniversary of the tobacco

manufacturing and sales monopoly. And the Tobacco & Salt Museum opened its doors to the public in Shibuya, Tokyo, on November 3rd, 1978, as a facility where, rather than merely exhibiting the collected materials, research could be conducted and materials collected on subjects such as cultural and industrial history related to tobacco and salt which, at the time, were monopoly commodities handled by the Japan Tobacco and Salt Public Corporation.

Since its open, the museum has been engaged in a variety of activities, meanwhile, as the 30th anniversary had passed by, problems like facility deterioration and the lack of storage space became increasingly apparent. It was around this time that we began to consider a new vision for the museum, to solve these problems and rework the exhibits overall, based on a vision for what the Tobacco and Salt Museum ought to be in the future. After repeated considerations, the relocation of the museum was decided. The museum in Shibuya wad closed on September 1st, 2013, and the new Tobacco & Salt Museum was reopened to the public on April 25th, 2015, in Sumida, near the TOKYO SKYTREE.

Thorough more than 35 years activity, the total number of collections has amounted to about 40,000, including 1,800 *ukiyo-e* woodblock prints, 800 *tabakobon* tobacco trays, 600 *tabakoire* tobacco pouches, 1,000 *kiseru* pipes, 1,800 signboards or posters, 8,000 cigarette packages, 10,000 tobacco items across the world, 1,030 salt related items, etc. Also we have collected more than 62,000 books or documents, photos, films, and so on.

At two permanent exhibition rooms new museum, rather than merely exhibiting these collected materials, we attempt to introduce correct information on tobacco and salt, and to gain public awareness and understanding of such industries, reflecting new information and utilizing new tools.

Permanent exhibition room of tobacco: History and Culture of Tobacco

Originating in the Americas, tobacco has formed various regional tobacco cultures as it has spread across the world. This exhibition room covers the history and culture of tobacco in the following sections: "The Birth and Spread of Tobacco Culture", "Tobacco Cultures across the World", "Tobacco Culture in the Edo Period" and "Tobacco Culture in the Modern Era".

1. Birth and Spread of Tobacco Culture

The tobacco plant is thought to have originated in the Andes Mountains in South America. The inhabitants of the Americas used tobacco in a variety of forms throughout a long history. After the first voyage of Columbus in 1492, tobacco and tobacco culture crossed the ocean from the Americas to Europe, and later to the world. In this section, we present the history of birth and spread of tobacco culture with the items like as pipes of the pre-European era and graphics. Also we have reproduced the inner chamber of the "Temple of the Cross" in the Palenque Ruins of Mexico in full size as an introduction to the exhibition room.

2. Tobacco Cultures Across the World

After the 16th century, in the process of spreading all over the world, the tobacco items and its uses also came to vary to suit each individual region. In this section, we introduce the diversity of the tobacco culture across the world, displaying various tobacco items such as pipes, water-pipes, snuff boxes, cigarette packages, etc.

3. Tobacco Culture in the Edo Period

Tobacco is thought to have arrived in Japan via foreign ships that came frequently in the latter half of the 16th century. At first, the Japanese imitated the smoking customs of the Europeans. As the customs came to take root, Japanese began to cut tobacco leaves as fine as hairs and smoke them in *kiseru* pipes. Throughout the Edo period, a unique tobacco culture was formed profoundly within Japan. In this section, we introduce the tobacco culture in the Edo period with the reproduction of a small tobacco shop and a *tabakoire* tobacco pouch shop in the early 19th century, the items like *ukiyo-e* woodblock prints, *tabakoire* tobacco pouches, *tobakobon* tobacco trays, and graphics.

4. Tobacco Culture in the Modern Era

Since the Meiji period (1868-1912) started, the Japanese Meiji government considered tobacco as a precious source of revenue to advance modernization of Japan, and in 1904 imposed a monopoly system on the manufacture and sale of tobacco. In 1985, under pressure for market liberalization from overseas and amidst administrative and financial reforms, the monopoly system was abolished and Japan Tobacco Inc. was established. In this section, we present a deep connection of tobacco with the society, lifestyle, and customs of the times through the items like cigarette packages, posters, signboards, graphics, videos, and many other materials. We also introduce the history and progress of tobacco cultivation and manufacturing with tobacco-leaves cutting machines, cigarette-making machine, pictures, and so on.

Permanent exhibition room of salt: The World of Salt

Salt is an indispensable substance without which humans and animals could not survive. This exhibition room covers salt-related topics in the following sections: "World Salt Resources", "Salt Production in Japan" and "The Science of Salt".

1. World Salt Resources

Salt is present in the world in a variety of forms like seawater, salt lakes, rock salts and more, and humans have devised various ways of producing salt as appropriate for their living environments, in order to obtain the salt necessary. Today, approximately 280 million tons of salt are produced annually around the world, and most of this is from non-seawater sources such as rock salt and salt lakes. In this section, we exhibit specimens of salt around the world, and graphics. Especially, rock salt sculpture of Saint Kinga Statue Altar, created with special permission from Wieliczka Salt Mine and made by sculptors among the Wieliczka miners and other Polish craftsmen, and chandelier made by rock salt crystals are one of the special-feature exhibits in the museum.

2. Salt Production in Japan

Japan lacks rock salt and salt lakes, and its rainy climate makes it difficult for salt to be created through solar evaporation. Because of this reason, since ancient times Japanese people have developed salt production methods consist of two processes: *saikan*, which concentrates seawater and extracts brine, and *sengo*, the boiling of brine to obtain salt crystals. In this section, we present the history and progress of salt production in Japan with models, diagrams, pictures, videos, and so on. Especially we utilize many diagrams to explain each process of salt production.

3. The Science of Salt

In this section, we introduce the various properties of salt with a "scientific" approach, meanwhile, every summer the museum offers a special exhibition about salt for children. Among the exhibition theme that changes every year, there is a "Shopping Game" in which children can learn many roles of salt not only in food but also in various household items, enjoying in the special exhibition room transformed as a "supermarket". At this most popular exhibition, children choose five items from shelves and bring them to the "Salt Cash" register to get information on how each product is made, and how salt is used in the production process. This "Shopping Game" is a development form of the "Tree of Salt Uses" in the "Science of Salt" section. The branches of this tree diagram represent the different categories of uses of salt as like uses in households and food processing, general industrial uses, uses in the soda industry and uses of chlorine compounds, while the leaves introduce typical and representative products for each use category.

Conclusion

Sumida-ward, where new Tobacco & Salt Museum is located, is a district deeply related to the history of tobacco industry, but there are no longer any old tobacco factories left. Also a large number of historical or industrial facilities or materials related to tobacco and salt have been disappearing in various parts of Japan. In such circumstances, one of the important issues for our museum is to continue collecting materials and investigating the history and culture of tobacco and salt. Especially the most urgent issue is to investigate and put in good condition several cigarette manufacturing machines that are temporarily placed in the warehouse adjacent to the museum.

In any case, we will continue to act as a museum that introduces and provides correct information on history, culture and industry of tobacco and salt.