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MIND THE HERITAGE

Life is increasingly being conditioned by the widespread digital technology and the internet. They have also entered the field of historic heritage and conservation for a long time, with academical researches, high-skill job opportunities in the field of 3D survey and modeling, dissemination and services to the public. To what stage is the relationship between digital technology and historical heritage?

These lines offer some hints, starting from recent outcomes in the field of neuroscience investigating as the internet and digital technologies are changing some of the core functions of our mind, such as the ability to pay attention and remember. Can historic heritage play a role in this process? What consequences to the conservation field?

CONSERVATION AND PRODUCTION

Conservation is nowadays an autonomous discipline, since heritage was recognized as a capital asset. Heritage conservation is thus an economic sector with many professionals and interests involved. Nevertheless, conservation was a field of social commitment for decades. Building conservation, in particular, has defended the historic cities against the pressure of urban speculation in Europe for two centuries, since the rise of modernity to the post-crisis reaction. A certain primacy of practical aspects and application technologies in the field of conservation has to be traced back to the early 1980s when the hard sciences entered the field of conservation and moreover of building restoration. Chemistry, physics, mineralogy, etc. have thus found a great opportunity of development in these areas, for both research and industry, from the production of special materials for strengthening or hi-tech systems for surface cleaning, to the large chemical industry of polymers for the building and restoration sector. Assorestauro and its members were undoubtedly born just downstream of this process.

CONSERVATION AND CONTEMPORARY VALUES

As a consequence, it has been recently observed as the so-called contemporary theory of conservation focused on the conservation activities and professionals, more than on the value-base for such an activity (MUNOZ VINAS 2012; CLAVIR 2002).

The framework of cultural values where conservation of built heritage rests on has significantly changed in the last decades. Conservation is inherently a part of modernity, since it has developed in Western Societies in the late XIX century, as an intellectual reaction to industrialization and urbanization. Some architects, historians and intellectuals looked for tangible objects, which could be preserved, reminding of the past and thus criticizing such a way of development. The effort was to define the past as a different world from the one we live in and positive (LOWENTHAL 1985). Conservation has aimed to make the past possible to relive by preserving the tangible evidence of its existence, that is heritage. This way national identities have been built in the XX century. More recently, the so-called cultural turn has stressed a postmodern view on cultural heritage as the product of

uneven power relations in our society where weaker groups lack the possibility to define what they believe is worth preserving. According to this view, such a possibility just belongs to the experts of heritage, which may represent the ethnic majority in society (cultural imperialism). Conservation has thus been criticized for its tendency to consider heritage as a field exclusively defined by experts (SMITH 2006).

Conservation has been then asked to follow the shifting political views and changes in society such as de-industrialization, immigration and the quest for inclusivity in the global climate change scenario. Nations are today only one of the places where collective identities take place, along with the biggest cities, the Mediterranean basin or the European community. They are understood as a mosaic of ethnicities where, at least theoretically, every piece has the same value. Since late XX century, the attempt to update the value-base for Europe has stressed the idea of a community not primarily based on national, but rather on ethnic identities. The cultural pluralism of Europe is nowadays challenged by a number of identity markers such as class, gender, generation or lifestyle, and there is no longer a consensus that cultural heritage is a resource of benefit for the whole society, but rather for groups or even individuals. In such a scenario, a question may be: whose values building conservation is preserving?

We may ask conservation to be up to date in a rapidly changing society, to acknowledge the social quests of multiculturalism, community involvement and local development. It means to re-assess the cultural, economic and social values of the built environment, even asking if values are still so intrinsic to the materials of a heritage building (AVRAMI&MASON 2000). In this perspective, we thus consider some possible updates to the relationship between the real historical heritage e.g. an object, building, landscape, and its digital image which has been the object of debate since years (DEZZI BARDESCHI 2005).

Plan of the velarium over the Arena in Verona. Engraving by Scipione Maffei, De gli anfiteatri, e singolarmente del veronese, Verona, 1728, pl. XII. COARELLI, F. & FRANZONI, L. Arena di Verona: venti secoli di storia.. Verona, Ente autonomo Arena di Verona, 1973
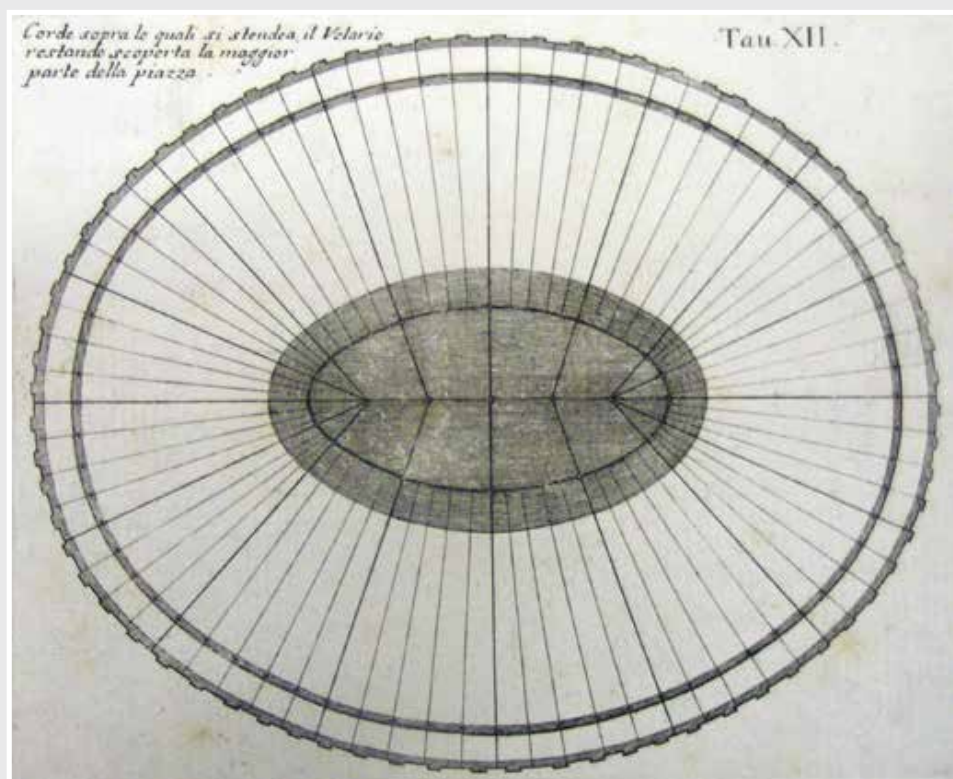
CONSERVATION AND DIGITAL TECHNOLOGY

A couple of weeks ago, I prepared some photo-rendering of a decorated room at Palazzo Diotti in Milan, which is undergoing restoration to remove the monochrome painting of the 1980s and to highlight the previous decorated walls. Photo-rendering was to predict and illustrate the possible outcome of the restoration, based on the already existing stratigraphic essays. Palazzo Diotti was built in the 17th-century, restored in the 18th and 19th-century. The point was to determine how many layers of paint to remove that is to decide whether to highlight the 19th or 18th-century decoration.

When the restorer began to remove the painting, the sequence of decorations concealed under the most recent revealed as we expected. We thus decided to remove the 20th-century layer (worthless) and the 19th-century (very deteriorated) to highlight the 18th-century decoration. After removing several square metres of both layers, the restorer revealed how much the 18th-century decorations were difficult to recover as it was much more deteriorated than I had designed with Photoshop. At that time, my first thought was not "you have to find another solution" but "press CTRL+Z". (Fig.1)

Though only for a while, my technology-accustomed brain thought I could cancel an erroneous action in the real world just as I am accustomed to retouch a bad imagine on the computer. This made me reflect about two things.

First: technology is actually changing the way we live, from doing digital shopping, to the way we communicate and work. Technology has penetrated my life so deeply that the more I spend time online, the more the border between "real" life and "virtual" life tends.

Second: what impact may such a pervasive technology have on historical heritage, that is my job and my passion? I wondered what stage is the relationship between the real object that is the historical monument and its digital image, at every moment and everywhere present on a mobile and internet?

Fig 1.
Stratigraphic samples, photo-simulation, a phase of the ongoing restoration in Palazzo Diotti, Milan
**Photo: DDC**

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Ante 1803

CONSERVATION AND ATTENTION

Everyone has experienced how the ability to concentrate for hours is challenged by the fast and tech-driven world we live in. According to a research published by Microsoft, the ability to pay attention decreased by 12 to 8 seconds from 2000 to 2013. Our attention dropped because we are so stressed with new information that if any content takes longer than a few seconds, our brain starts searching for the next hit of excitement. In fact, the number of "jolts per minute" is the unit of measure for media content producers and advertisers to comply our demand for new information via TV and mobile devices (a "jolt" is a change in action that keeps us watching a show). Our reduced attention spans links to the so called "attention economy":

> the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it (SIMON 1971, pp. 40-41).

Historic heritage is not immune to the "attention economy" and may benefit or disadvantage from it depending on its ability to stimulate this constant demand for new information. Heritage is then called to produce images able to capture attention when viewed on the small screen of a mobile phone or tablet.

A recent example is the Paleo-Christian Basilica of Siponto, Italy. The archaeological remnants of the basilica were used as the basis for building an artistic installation consisting of a 14 meters high wire mesh structure suggesting the "wireframe" volume of
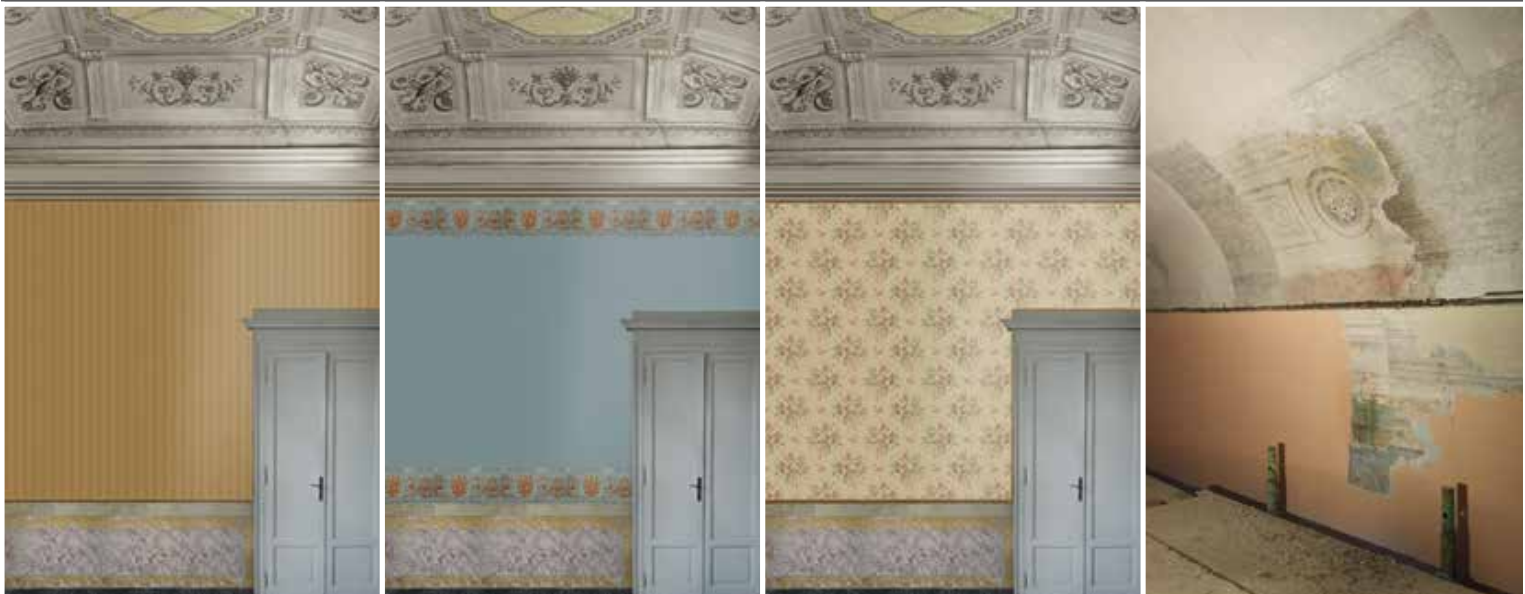
Ante 1870   Ante 1942   Ante 1953

the ancient basilica. A heated debate sparked about this achievement weighing 7 tons and costing 3.5 MEuros. According to the opponents, it does not protect the archaeological remains and, on the contrary, carries them an additional weight and exposes them to the risk of contamination due to the rust. According to the supporters, however, the volume of "wireframe" helps site visitors interpret the archaeological remains (PANE 2017, p. 129). For sure, the operation was done with great care for communication via TV, newspapers and internet. The images of the large metal structure in the warm sunset light are much more seductive than those showing the only archaeological remains, especially when viewed on the small screen of a mobile for eight seconds or less (Fig. 2).

A second example is the international competition promoted by the City of Verona in 2016 to design a roof protecting the Roman amphitheater from the weather. Most of the entries have proved to be of high architectural quality and supported by interesting solutions both from a constructive, and historical/philological point of view. However, it is quite evident to those who have familiarity with architecture and archaeology how such an idea is inadequate from a scientific point of view and disproportionate to the problem it aims to solve. Even in this case, the media resonance of the competition, here condensed in a couple of more imaginative than explanatory photo-rendering, has produced the media resonance that was so desired during the election period. Fortunately, other studies have been working over the past 10 years to reduce the amphitheater's degradation due to rain and moisture. These researches have developed much simpler and cheaper solutions based on planned and seasonal maintenance. After the hangover of the roof, they will hopefully work again on this serious issue (CASTIGLIONI&COFANI, 2017). (Fig. 3)

Fig 2. A 14-metres tall wire mesh installation reproduces the shape of the 12th century Basilica of Santa Maria in the Archaeological Park of Siponto, following the shape of the remains (Ministry of Cultural Heritage and Tourism, Superintendence of Puglia (Artist: E. Tresoldi; curator: S. Pallotta; structures: Cobar SpA) Photo: B. Mondelli/gigart. altervaist.org

Fig 3.
Architect R. Ventura's was awarded 3rd place within the competition for an openable roof to protect the Roman Amphitheatre of Verona from the decay due to weathering. A central ring over the arena is supported by exterior slender columns not affecting the walls. The cover made of sheets takes inspiration from the ancient canopies.
Photo: Comune di Verona/3Arc Studio

CONSERVATION AND MULTITASKING

Another way that technology threatens our ability to pay attention is by forcing us to be constantly multitasking: we chat on WhatsApp as we attend a meeting, browse Facebook while we prepare a meal, check the mail every 5 minutes while writing a paper. It has been noted as this is an induced and unwanted condition that increases our level of stress. It has also been observed that our brain is not naturally suited for dealing with multiple items at the same time. For this reason, instead of increasing our productivity, multitasking reduces our efficiency:

> We can't multitask well, no one can. (…) What we're actually doing when we think we're multitasking is just switching back and forth between tasks (…) We overestimate our ability to focus – so when you're concentrating do one thing and close down multiple screens and windows to avoid distractions. It also symbolically signals to your brain you need to focus. (CHATZKY 2016)

On the one hand, the historic heritage can be damaged by this constant urge to multitasking, since it is likely to be reduced to one of the many fleeting items our mind is called to cope with. On the other hand, heritage can also be a refuge from this constant threat. In fact, when we experience a piece of heritage while studying, restoring or simply visiting an archaeological site, a historic building, a collection in a museum, we are subject to a demand for a high-quality attention. This naturally supports our spontaneous weakness to linger in the dozens of distractions that would lead us to squander our attention into irrelevant fragments. It does not mean that enjoying a monument, a historic building or any other piece of heritage is necessarily a boring experience or a strain on our mind so much as it can not be counted among the pleasures and leisure to which free time is reserved. On the contrary, the real experience of historical heritage is an oasis where we finally put in stand-by all the items looking for short and immediate answers and where we can instead continue to exercise our ability to think deeply.

Instead of reducing the richness of our historical heritage to the contingent needs of multitasking, we should focus on its naturally polysemous content. In fact, every monument / document embodies a number of different meanings and messages that can be decoded and interpreted at different levels and to the benefit of different users. This is a specific task for museums, where specific paths are conceived for each kind of user. Galleria Nazionale delle Marche – Palazzo Ducale di Urbino, is a good example. Along with the traditional diversified routes for children, boys, experts, etc., a path for low vision users has been developed. Digital technology has been helpful, for example by facilitating the creation of 3D models that allow blind people to "see" some of the major Renaissance masterpieces through the touch and other senses (CLINI et al. 2017).

CONSERVATION AND AUGMENTED REALITY

The Ara Pacis is one of the major legacies of the Roman Empire as it is an altar dedicated by Emperor Augustus to the "Pax Romana" in 9 BC. The Ara Pacis was overwhelmed during the Middle Ages and was recovered from the 16th century. In the 1930s it was placed in a large display-case-shaped building along the Tiber River. Since last year, the "Ara com'era" (Ara as it was) exhibition allows you to visit the monument with the aid of a pair of glasses for augmented-reality. The visit consists in a walk around the monument along 9 points of interest (POI). Each point provides 3D multimedia contents telling the characteristics and history of the Ara Pacis (ARCHEOMATICA 2016). (Fig. 4)

Fig 4. Since 2016, the "Ara com'era" (Ara as it was) exhibition allows you to visit the monument with a device for augmented-reality providing 3D multimedia contents and suggesting how the monument has changed during centuries. Photo: arapacis.it

Beyond the playful aspect and audience appeal, it is interesting to use the augmented-reality devices as a tool to show a hypothetical, though philologically well-supported, reconstruction of the aspect the monument had when it was built. Sophisticated digital images effectively enrich the storytelling, without affecting the material authenticity of the monument. For example, looking at the Ara Pacis through the viewer, you may see a simulation of its surfaces as they were colored in antiquity, though colors are naturally virtual. It is then interesting to observe as the use of such portable device allows a visitor to enjoy additional content just as he / she is visiting the monument and physically interacting with it, for example walking around. As a visitor enjoys the real and virtual content at once, he / she spontaneously appreciates the difference between the authentic value of the real monument and the contemporary and experimental value of the image representing a research hypothesis (BACCA et al. 2014).

CONSERVATION AND MEMORY

Memory is perhaps the brain ability most seriously affected by digital technology. The so-called "Google effect" represents a fundamental shift in how we remember by using the internet to outsource our memory storage like a remote hard disk. In 2011 a seminal study by Columbia University explored the way we use our memory since we have internet. Results show how the internet has become a primary form of external or transactive memory, meaning that we use it like spare storage for our brains, filing many information like memories, things we have done or studied. As a matter of fact, before the internet allowed so many data to be immediately available to users, to do a research, you did need to consult an expert or go to the library and find the right book. Being aware of this process, we were stimulated to store the hard-earned information. Now we know we will be able to access it again when we need it, and we thus choose not to remember because we do not have to. This may have relevant consequences, e.g. reducing or changing our ability to focus onto details, as when we encode information we tend to do it more superficially.

The "Google effect" affects our most basic functions also, like our navigational ability. Researchers have recently studied as the instinctive ability to keep the orientation by figuring the right route to from a place to another, takes place in a specific part of our brain, which stops working when we use a satnav for long time (JAVADI et al. 2017). Using a satnav puts in a sort of stand-by some parts of the brain that would otherwise be used to simulate different routes. The "Google effect" does not make us less intelligent, but our brain (particularly some parts) is just less engaged. It is thus vital we keep memory fit, not to lose mental agility. Our mind, in the end, is able to adapt quickly and react to the environment and its stimuli. Therefore, it is not surprising that our concentration and memory capacity is changing in an environment dominated by digital technology and the internet. We may guess that if we devote less resources to storing information, this can free up space and mental energies for other activities, hopefully creative or inventive.

Historical heritage can play an important role in this process, because its enjoyment requires these faculties in use. When visiting an archaeological site for instance, we are called to mentally rebuild the image of the lost city on the basis of the view of its remains.

This exercise keeps our attention, memory and orientation skills fit. In addition, when visiting a historical site, we are stimulated to remember and process the memory of what we have previously studied only on the basis on its image, on a book or video (e.g. its history and shape). This instinctively happens in front of the real thing, as if memory was there looking for a confirmation. Moreover, the onsite experience of a historic, architectural and archaeological heritage is a source of powerful images and other multisensory stimuli largely non-replaceable by virtual reproduction. These images and stimuli do create intense emotional reactions that are indispensable to fix a memory in our brain, as well known since the antiquity, particularly the technique of "architectural mnemonic" already described by Giordano Bruno's "Art of memory". For this reason, the real experience of archaeological monuments and sites remains necessary both for mental health and education, particularly for young people.

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